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Ontario. Legislative Assembly

SESSIONAL PAPERS

VOL. LIII.—PART VI

SECOND SESSION

OF THE

FIFTEENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO

186605.
16.1.24.

SESSION 1921

TORONTO:
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1922

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LIST OF SESSIONAL PAPERS

PRESENTED TO THE HOUSE DURING THE SESSION

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Agricultural College, Report	30	*Printed.*
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Agricultural Societies, Report	42	“
Agriculture, Department of, Report	29	“
Bee-Keepers Association, Report	37	*Printed.*
Canada Copper Co., correspondence	79	*Not Printed.*
Civil Service Commission, Report of	87	*Printed.*
Commission on University Finances, Report of	65	*Printed.*
Convictions under Temperance Act	84	*Not Printed.*
Coroners, Interim Report *re*	80	*Printed.*
Dairymen's Associations, Report	38	*Printed.*
Distribution of Statutes	60	*Not Printed.*
Dismissal, Lewis R. Luke	75	*Not Printed.*
Division Courts, Report	5	*Printed.*
Dunnville Police Magistrate, Report of Commission, *re*	94	*Not Printed.*
Education, Report	17	*Printed.*
Elections, Returns from Records	51	“
Entomological Society, Report	36	“
Estimates, 1920-21	2	“
Fish caught in Nipigon, etc.	83	*Not Printed.*
Friendly Societies, Report	11	*Printed.*
Fruit Growers' Association, Report	44	*Printed.*
Game and Fisheries, Report	14	*Printed.*
Goals, Prisons and Reformatories, Report	26	*Printed.*
Government Buildings outside, Return *re*	91	*Not Printed.*
Hospitals, etc., Order-in-Council, *re*	93	*Not Printed.*
Health, Report of Board of	21	*Printed.*
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Horticultural Societies, Report	43	“
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Hydro-Electric Power Commission, Report	49	“
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Idiots and Epileptics, Report	23	*Printed.*
Insane Hospitals, Report	22	“
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Lands, Forests and Mines, Report	3	*Printed.*
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Library, Report	53	*Not Printed.*
License Commissioners, Report on O. T. A.	28	*Part 6, 1920. Sess. Vol.*
Live Stock Branch, Report	39	*Printed.*
Loan Corporations, Statements	12	*Printed.*
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Provincial Auditor, Report	54	*Printed.*

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" " " Lea's Report	86	*Printed.*
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Registrar-General, Report	20	*Printed.*
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Secretary and Registrar, Report	19	*Printed.*
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Soldiers' Aid Commission, Annual Report	69	*Not Printed.*
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Timber Licenses, Report *re*	67	*Printed.*
Toronto University, Report	18	*Printed.*
Trades and Labour, Report	16	*Printed.*
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Vineland Station, Report	45	*Not Printed.*
Women's Institutes, Report	41	*See 1922 Sess.*
Workmen's Compensation Board, Report	55	*Printed.*

LIST OF SESSIONAL PAPERS

Arranged in Numerical Order with their Titles at full length; the dates when presented to the Legislature; the name of the Member who moved the same; and whether ordered to be Printed or not.

CONTENTS OF PART I.

No. 1 Public Accounts of the Province for the year ending 31st October, 1920. Presented to the Legislature, 11th February, 1921. *Printed.*

No. 2 Estimates—Supplementary for the service of the Province for the year ending 31st October, 1921. Presented to the Legislature, 15th February, 1921. *Printed.* Further supplementary estimates presented to the Legislature 15th April, 1921. *Printed.* Estimates for the year ending October 31st, 1922. Presented to the Legislature, 21st April, 1921. *Printed.*

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No. 3 Report of the Minister of Lands and Forests for the year 1920. Presented to the Legislature, 29th April, 1921. *Printed.*

No. 4 Report of the Department of Mines for the year 1920. Presented to the Legislature, 21st March, 1921. *Printed.*

CONTENTS OF PART III.

No. 5 Report of the Inspector of Division Courts for the year 1920. Presented to the Legislature, 7th February, 1921. *Printed.*

No. 6 Report of the Inspector of Legal Offices for the year 1920. Presented to the Legislature, 21st March, 1921. *Printed.*

No. 7 Report of the Inspector of Registry Offices for the year 1920. Presented to the Legislature, 21st March, 1921. *Printed.*

No. 8 Report of the Provincial Municipal Auditor for the year 1920. Presented to the Legislature, 15th February, 1921. *Printed.*

No. 9 Report of the Commissioners for the Queen Victoria Niagara Falls Park for the year 1920. Presented to the Legislature, 29th April, 1921. *Printed.*

No. 10 Report of Superintendent of Insurance for the year 1920. Presented to the Legislature, 15th February, 1921. *Printed.*

No. 11 Report of the Registrar of Friendly Societies for the year 1920. Presented to the Legislature, 15th February, 1921. *Printed.*

No. 12 Loan and Trust Corporations' statement being abstracts from financial statements made by building societies, loan companies, loaning land companies and trust companies for the year ended Decem-31st, 1919. Presented to the Legislature, 1st February, 1921. *Printed.*

Report of the Registrar of Loan Corporations for the year 1920. Presented to the Legislature, 15th February, 1921. *Printed.*

CONTENTS OF PART IV.

No. 13 Report of the Minister of Public Works for the year 1920. Presented to the Legislature, 15th February, 1921. *Printed.*

No. 14 Report of the Game and Fisheries Department for the year 1920. Presented to the Legislature, 7th March, 1921. *Printed.*

No. 15 Report of the Department of Public Highways for the year 1920. Presented to the Legislature, 28th April, 1921. *Printed.*

No. 16 Report of the Department of Labour for the year 1920. Presented to the Legislature, 29th April, 1921. *Printed.*

No. 17 Report of the Minister of Education for the year 1920. Presented to the Legislature, 13th April, 1921. *Printed.*

No. 18 Report of the Board of Governors of the University of Toronto for the year ending 30th June, 1920. Presented to the Legislature, 2nd February, 1921. *Printed.*

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No. 19 Report of the Secretary and Registrar of the Province for the year 1920. Presented to the Legislature, 28th April, 1921. *Printed.*

No. 20 Report of the Registrar-General relating to the Registration of Births, Marriages and Deaths for the year ending 1920. Presented to the Legislature, 1st March, 1921. *Printed.*

No. 21 Report of the Provincial Board of Health for the year 1920. Presented to the Legislature, 11th February, 1921. *Printed.*

No. 22 Report of the Inspector of Prisons and Public Charities upon the Ontario Hospitals for the Insane for the year 1920. Presented to the Legislature, 13th April, 1921. *Printed.*

No. 23 No Report.

No. 24 No Report.

No. 25 Report upon the hospitals and charitable institutions for the year 1920. Presented to the Legislature, 29th April, 1921. *Printed.*

No. 26 Report upon the prisons and reformatories for the year 1920. Presented to the Legislature, 13th April, 1921. *Printed.*

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No. 27 Report upon the neglected and dependent children for the year 1920. Presented to the Legislature, 29th April, 1921. *Not Printed.*

No. 28 Report upon the operation of the Ontario Temperance Act for the year 1920. Presented to the Legislature, 14th February, 1921. *Printed. Part 6, 1920, Sess. Vol.*

No. 29 Report of the Minister of Agriculture for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

No. 30 Report of the Ontario Agricultural College and Experimental Farm. for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

No. 31 No Report.

No. 32 Report of the Agricultural and Experimental Union for the year 1920. Presented to the Legislature, 27th April, 1921. *Printed.*

No. 33 Report of the Stallion Enrolment Board for the year 1920. Presented to the Legislature, 1st February, 1921. *Printed.*

No. 34 Report of the Vegetable Growers' Association for the year 1920. Presented to the Legislature, 27th April, 1921. *Printed.*

No. 35 No Report.

No. 36 Report of the Entomological Society for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

No. 37 Report of the Beekeepers' Association for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

No. 38 Report of the Dairymen's Associations for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

No. 39 Report of the Live Stock Branch for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

No. 40 Report *re* Housing of the Bureau of Municipal Affairs for the year 1920. Presented to the Legislature, 29th April, 1921. ~~*Printed.*~~

NOT PRINTED– MANUSCRIPT AT
ONT. ARCHIVES

No. 41 Report of the Women's Institutes for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

No. 42 Report of the Agricultural Societies and the Convention of the Ontario Associations and Exhibitions for the year 1920. Presented to the Legislature, 16th February, 1921. *Printed.*

No. 43 Report of the Horticultural Societies for the year 1920. Presented to the Legislature, 27th April, 1921. *Printed.*

No. 44 Report of Fruit Growers' Association for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

CONTENTS OF PART VII.

No. 45 No Report.

No. 46 Report of the Statistics Branch of the Department of Agriculture for the year 1920. Presented to the Legislature, 22nd April, 1921. *Printed.*

No. 47 Report of Bureau of Municipal Affairs for the year 1920. Presented to the Legislature, 11th February, 1921. *Printed.*

No. 48 Report of the Temiskaming and Northern Ontario Railway for the year 1920. Presented to the Legislature, 10th March, 1921. *Printed.*

No. 49 Report of the Hydro-Electric Power Commission for the year 1920. Presented to the Legislature, 4th April, 1921.

CONTENTS OF PART VIII.

No. 50 Report of The Ontario Railway and Municipal Board for the year 1920. Presented to the Legislature, 21st March, 1921. *Printed.*

No. 51 A Return from the Records of the By-Elections to the Legislative Assembly held on the 19th day of July and the 8th day of November, 1920, shewing:—

(1) The number of Votes Polled for each Candidate in each Electoral District in which there was a contest; (2) The majority whereby each successful Candidate was returned; (3) The total number of Votes Polled; (4) The number of Votes remaining unpolled; (5) The number of names on the Polling Lists; (6) The number of Ballot Papers sent out to each Polling Place; (7) The Used Ballot Papers; (8) The Unused Ballot Papers; (9) The Rejected Ballot Papers; (10) The Cancelled Ballot Papers; (11) The Declined Ballot Papers; (12) The Ballot Papers taken from Polling Places; (13) A General Summary of Votes cast in each Electoral District. Presented to the Legislature, 25th January, 1921. *Printed.*

No. 52 Report of the Bureau of Archives for the Province of Ontario, 1920. Presented to the Legislature, 15th April, 1921. *Printed.*

—Supplement to Report of the Bureau of Archives, 1920. Presented to the Legislature, 27th April, 1921. *Printed.*

No. 53 The Report of the Librarian on the state of the Library. Presented to the Legislature, 26th January, 1921. *Not Printed.*

No. 54 Auditor's Report for the year 1919-20. Presented to the Legislature, 8th March, 1921. *Printed.*

No. 55 Report of the Workmen's Compensation Board for 1920. Presented to the Legislature, 28th April, 1921. *Printed.*

No. 56 Report on the Administration of Criminal Justice and Treatment of Prisoners in New York, Chicago, Detroit and Toronto, by His Honour Judge Coatsworth, Senior Judge of the County of York, Province of Ontario. · Presented to the Legislature, 5th April, 1921. *Printed.*

No. 57 Report of the Ontario Board of Parole for the year ending 31st October, 1920. Presented to the Legislature, 21st February, 1921. *Printed.*

No. 58 Report of the Committee on Rural Credits. Presented to the Legislature, 11th February, 1921. *Printed.*

No. 59 Report of the Select Committee of the Legislative Assembly, as to a more equitable system of distribution of Hydro-Electric power and a more uniform price. Presented to the Legislature, 26th January, 1921. *Printed.*

No. 60 Statement of the distribution of the Revised and Sessional Statutes for the year 1920. Presented to the Legislature, 1st February, 1921. *Not Printed.*

No. 61 Regulations and Orders-in-Council passed since the last Session of the Legislature under the authority of the Department of Education Act, or of the Public Schools, Separate Schools or High Schools. Presented to the Legislature, 1st February, 2nd February, 14th February, 7th March, 21st March, 13th April, 1921. *Not Printed.*

No. 62 Interim Report *re* Issuers of Marriage Licenses, Public Service Commission. Presented to the Legislature, 11th February, 1921. *Printed.*

No. 63 Interim Report of the Public Service Commission *re* Police Magistrates. Presented to the Legislature, 11th February, 1921. *Printed.*

No. 64 The Minister of Lands and Forests presented to the House, a Return to an Order of the House showing 1. How many Timber Limits have been offered for sale since 1st December, 1919, and where situated. 2. Were they all sold by tender. 3. The date of sale, area, and price paid. 4. Were any withdrawn after being advertised, and if so, why. 5. How many tenders were received in each case. 6. The name of the successful tenderer. 7. The amount of bond given in each case by the successful tenderer. Presented to the Legislature, 16th February, 1921. Mr. *Tolmie.* *Not Printed.*

No. 65 Report of the Commission to enquire into and report upon a basis for determining the financial obligations of the Province toward the University of Toronto, and the financial aid which the Province may give to Queen's University of Kingston and the Western University of London, etc., etc. Presented to the Legislature, 21st February, 1921. *Printed.*

No. 66 Return to an Order of the House of the 14th day of February for a Return showing dates when tenders called for, the tenders received and the names of tenderers for the production of (*a*) Ontario Public School Readers, each respectively; (*b*) Ontario Public School Histories, each respectively; (c) Ontario High School History; (*d*) Ontario Composition and Grammar. Presented to the Legislature, 21st February, 1921. Mr. *Sinclair.* *Not Printed.*

No. 67 Interim Reports (First, Second and Third) of the Commission to investigate and report upon the accuracy or otherwise of all returns made pursuant to The Crown Timber Act, sec. 14, by any holder of a Timber License, etc., etc., etc. Presented to the Legislature, 23rd February, 1921. *Printed.*

No. 68 Return to an Order of the House of the 23rd February, 1921, for a Return of copies of all correspondence between the Minister of Lands and Forests, the Prime Minister, or any Minister of the Government and any official, representative or solicitor on behalf of the Spruce Falls Pulp & Paper Co., together with all estimates, reports, conditions of sale, maps, documents and papers of every kind and nature, relating to (1) The sale of the Kapuskasing Soldiers' and Sailors' Settlement Colony; (2) The additional area acquired by the Company to add to the concession known as the Kapuskasing Pulp Concession; (3) Relating to the establishment of the Government Town Site at Kapuskasing. Presented to the Legislature, 24th February, 1921. Mr. *Magladery.* *Not Printed.*

No. 69 Annual Report of the Soldiers' Aid Commission of Ontario for year ending 31st October, 1919. Presented to the Legislature, 1st March, 1921. *Not Printed.*

No. 69 Report of Soldiers' Aid Commission for the year 1920. Presented to the Legislature, 21st March, 1921.

No. 70 Return to an Order of the House of 23rd February, 1921, that there be laid before the House, a Return showing the number of Issuers of Marriage Licences in the Province of Ontario, with their names and addresses and the date of their appointment. Presented to the Legislature, 1st March, 1921. Mr. *Ross,* Kingston. *Not Printed.*

No. 71 Return to an Order of the House of 9th February. 1921, that there be laid before the House a Return of copies of all correspondence, papers and documents since 13th November, 1919, relating to conduct or duties of Magistrates, Justices of the Peace and other officers with reference to enforcement of The Ontario Temperance Act. Presented to the Legislature, 1st March, 1921. Mr. *Hill. Not Printed.*

No. 72 Return to an Order of the House of 23rd February. 1921, that there be laid before the House a Return of copies of the Report of the Superintendent of Provincial Police to the Attorney-General for the years 1918, 1919 and 1920. Presented to the Legislature, 1st March, 1921. Mr. *Godfrey. Not Printed.*

No. 73 Return to an Order of the House of 23rd February, 1921, for a Return showing copy of Agreement between Provincial Board of Health and Federal Health Department relating to prevention of Venereal Diseases. 2. What amount has already been received by the Province to date. Presented to the Legislature, 4th March, 1921. Mr. *Price. Not Printed.*

No. 74 Return to an Order of the House of 4th February, 1921, for a Return of copies of all correspondence passing between the Government of Ontario or any member, officer or official thereof, or of any department thereof and any member of the House or other person leading up to it, and dealing with the suspension and resignation of Messrs. Smith and Hanna from the Provincial Police. Presented to the Legislature, 4th March, 1921. Mr. *Tolmie. Not Printed.*

No. 75 Return to an Order of the House of the 4th February, 1921, for a Return of copies of all correspondence with and by the Government or any department thereof leading up to and relating to the dismissal of Mr. Lewis R. Luke as License Inspector for Ontario County. Presented to the Legislature, 4th March, 1921. Mr. *Sinclair. Not Printed.*

No. 76	Statement and Report of the Ontario Athletic Commission and of Auditor for the year 1920. Presented to the Legislature, 4th March, 1921. *Not Printed.*
No. 77	Report of the Commission upon the rates of wages paid to men employed by The Hydro-Electric Power Commission in the construction of the Queenston-Chippewa Development. Presented to the Legislature, 4th March, 1921. *Printed.*
No. 78	Return to an Order of the House of 28th February, 1921, that there be laid before the House a Return of copies of all letters, reports and communications of every kind received by the Minister of Mines or any member of the Government with respect to the proposed increase in mining taxes. Presented to the Legislature, 9th March, 1921. Mr. *Ferguson. Not Printed.*
No. 79	Return to an Order of the House of 23rd February, 1921, for a Return of copies of all correspondence between the Government or any member or any Minister or official and the Canada Copper Company (International Nickel Company) and George E. Buchanan relating to leases or grants of nickel-bearing or other mineral lands in the Township of Creighton, District of Sudbury, since 13th November, 1919. Presented to the Legislature, 10th March, 1921. Mr. *Dewart. Not Printed.*
No. 80	Interim report respecting Coroners of the Commission to inquire, consider and report upon the best mode of selecting, appointing and remunerating Sheriffs, etc., etc. Presented to the Legislature, 18th March, 1921. *Printed.*
No. 81	Report of the Committee on Proportional Representation. Presented to the Legislature, 5th April, 1921. *Printed.*
No. 82	Return to an Order of 16th February, 1921, that there be laid before the House a Return showing what are the amounts paid by each Company respectively which make up the total credited to The Mining Tax Act in the Public Accounts for 1920 at page *a*31 under the heading: (*a*) Acreage tax, $71,223.26; (*b*) Profits tax, $713,291.46. Presented to the Legislature, 21st March, 1921. Mr. *McAlpine. Not Printed.*
No. 83	Return to an Order of the House, of 9th February, 1921, that there be laid before the House a Return showing:—1. What was the total quantity of fish caught in Lake Nipissing and Lake Nipigon, respectively, and marketed in the following years—1917, 1918, 1919 and 1920. 2. What were the varieties of fish caught and marketed in Lake Nipissing and Lake Nipigon respectively, and

the quantity of each. 3. What was the price paid to fishermen for each variety; what was the price at which the Government sold each variety; to whom were such sales made. 4. To whom were licenses issued to take fish from Lake Nipissing and Lake Nipigon respectively, in the years 1917, 1918, 1919 and 1920. 5. Is it the intention of the Government to continue this Fishery Department as a commercial enterprise. 6. What were the gross receipts from fish sales in Lake Nipissing and Lake Nipigon in the years 1917, 1918, 1919 and 1920, and what were the net profits of the Government in each of said years. Presented to the Legislature, 1st April, 1921. Mr. *Mageau*. *Not Printed.*

No. 84 Return to an Order of 23rd February, 1921, that there be laid before the House a Return showing the number of convictions made under The Ontario Temperance Act for breaches of the said Act for year 1919-20: 1. At the instance of officers of the Board of License Commissioners. 2. At the instance of officers of the Ontario Provincial Police. 3. At the instance of Municipal Police officers. 4. The number of cases in which fines or sentences have been remitted, reduced, or commuted: (1) Upon the recommendation of the Board of License Commissioners; (2) Without the recommendation of the Board of License Commissioners. Presented to the Legislature, 13th April, 1921. Mr. *Godfrey*. *Not Printed.*

No. 85 Copy of Report of R. D. Johnson *et al* on the Queenston-Chippawa Power Development, with statement of professional record of H. S. Kerbaugh and Francis Lee Stuart, with letters. Presented to the Legislature, 13th April, 1921. *Printed.*

No. 86 Report of R. S. Lea, Consulting Engineer of Progress on Queenston-Chippawa Power Development, 31st January to 9th April, 1921. Presented to the Legislature, 13th April, 1921. *Printed.*

No. 87 Report of the Civil Service Commissioner for Ontario, 1920. Presented to the Legislature, 15th April, 1921. *Printed.*

No. 88 First Annual Report of The Mothers' Allowances Commission for the year 1920. Presented to the Legislature, 20th April, 1921. *Printed.*

No. 89 Final Report of Hugh L. Cooper & Co. *re* Queenston-Chippawa Development of the Hydro-Electric Power Commission of Ontario. Presented to the Legislature, 21st April, 1921. *Printed.*

No. 90 Return to an Order of the House of the 25th February, 1921, that there be laid before this House a Return showing:—1. How many miles are included in the Ottawa-Prescott Highway. 2. How many miles of this Highway were completely graded at the end of the year 1920. 3. How much grading still remains to be done. 4. What was the average cost *per* mile of the grading completed. 5. What amount was spent during the year 1920 on equipment for the Ottawa-Prescott Highway. 6. How many men were employed in each of the months of 1920. 7. Has the Government purchased any gravel pits or stone quarries along or in the vicinity of the right-of-way of the Ottawa-Prescott Highway, and if so (*a*) From whom; (*b*) What was paid for each; and (*c*) What was the area of each. 8. Has the Government rented any gravel pits or stone quarries along or in the vicinity of the right-of-way of the Ottawa-Prescott Highway, and if so (*a*) From whom; (*b*) What was paid for each; and (*c*) What was the area of each. 9. Did the Government purchase any gravel or stone for the right-of-way of the Ottawa-Prescott Highway, and if so (*a*) From whom; (*b*) What was paid per cubic yard; and (*c*) What was the total amount paid each man. 10. How many culverts were built during the year 1920. 11. How many still remain to be completed. 12. How many culverts were built (*a*) By day labour; (*b*) By contract. 13. If any were built by the latter (*a*) Who were the contractors; (*b*) What were the unit prices paid; (*c*) What lump sums were paid to each contractor. 14. What was the cost *per* cubic yard of the said culverts in place built by day labour. 15. What was the cost *per* cubic yard of the said culverts in place built by contract. 16. What was the total amount spent on the Ottawa-Prescott Highway to 31st December, 1920. 17. Have the plans of the said Highway been filed in the Federal Department of Railways pursuant to the Canada Highways Act, and if so, when. 18. Has a subsidy agreement been signed with the Dominion Government pursuant to the Canada Highways Act. 19. If so, what is the date of the agreement. 20. Has the Government received any payments on account of Dominion Government subsidy, and if so, the dates and amounts of the payments. 21. What wages were paid during 1920, on the Ottawa-Prescott Highway (*a*) For unskilled labour; (*b*) For teams with driver. 22. How many hours a day did the men employed on the road during 1920 work. 23. Who was the engineer in charge of the road during 1920, and what was his salary. 24. Has the Government settled with all the parties from whom the right-of-way was acquired. 25. If the answer to 24 is in the negative, what parties still remain to be settled with. Presented to the Legislature, 28th April, 1921. Mr. *Hill*. *Not Printed*.

No. 91 Return to an Order of 4th March, 1921, that there be laid before this House a Return showing:—1. What places in the City of Toronto are employed for Government use outside the Legislative Building. 2. For what Department, Commission or Board are they being used. 3. What are the terms of rental or lease. 4. How much has been expended on improvements on each place to date. 5. On what dates was possession taken under the different leases. 6. How many employees are at work in each of the respective buildings so leased. Presented to the Legislature, 29th April, 1921. Mr. *Ross,* Kingston. *Not Printed.*

No. 92 Return to an Order of 21st February, 1921, that there be laid before this House a Return of copies of all papers and correspondence between the Government or any member thereof or any official on behalf of the Government and any other Corporation or person relating to: (*a*) Loan "R.R." sold to syndicate composed of the Dominion Securities and others: (*b*) Loan for $16,000,000 at 6 *per cent.,* repayable in fifteen years for which the price of 92.34 was realized; (*c*) The loan "S.S." sold to the syndicate composed of Aemilius Jarvis and others; (*d*) The loan for $10,000,000 at 6 *per cent.,* repayable in twenty years for which the price of 96.787 was realized. Presented to the Legislature, 29th April, 1921. Mr. *Hay.* *Not Printed.*

No. 93 Copies of Orders-in-Council designating, pursuant to section 14 of The Hospitals and Charitable Institutions Act, Hospitals, Refuges, Orphanages and Infants' Homes, to which aid be granted. Presented to the Legislature, 29th April, 1921. *Not Printed.*

No. 94 Report of the Commission to inquire into and report upon the truth or falsity of the charges made against David Hastings, Police Magistrate, Dunnville. Presented to the Legislature, 29th April, 1921. *Not Printed.*

Ontario Department of Agriculture

REPORT

OF THE

Minister of Agriculture

PROVINCE OF ONTARIO

FOR THE YEAR ENDING
OCTOBER 31, 1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by CLARKSON W. JAMES, Printer to the King's Most Excellent Majesty
1921

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THE RYERSON PRESS

To His Honour LIONEL H. CLARKE,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to submit the annual report of the Minister of Agriculture for the year ending October 31st, 1920.

Respectfully submitted,

MANNING W. DOHERTY,

Minister of Agriculture.

TORONTO, 1921.

REPORT

OF THE

Minister of Agriculture

PROVINCE OF ONTARIO

1920

ONTARIO AGRICULTURAL COLLEGE

Following are the figures showing the attendance at the various long and short courses held during the year.

(Figures for general courses include students of winter term and new students of fall term.)

General Course	741	
Specialists in General Course	2	
Manual Training (One Year Normal Course)	3	
Dairy Courses	128	
Stock and Seed Judging	190	
Poultry Raising	65	
Horticulture Courses	145	
Agriculture	126	
Agriculture	6	
Farm Power	156	
		1562
Domestic Science (at Macdonald Institute)	368	
Summer Courses—High School—First Year, Second Year	58	
Public School Teachers, First Year	152	
Public School Teachers, Second Year	145	
Schools for Rural Leadership	83	
Farm Mechanics	9	
Course for School Inspectors	9	
		824
Total		2386

ANALYSIS OF COLLEGE ROLL (GENERAL COURSE) 1920

These figures are taken from the attendance in the Fall Term, 1920.

From Ontario

Algoma	2
Brant	9
Bruce	9
Carleton	46
Dufferin	
Dundas	4
Durham	5
Elgin	4
Essex	10
Frontenac	5
Glengarry	4
Grenville	5
Grey	6
Haldimand	5
Halton	10
Hastings	4
Huron	8
Kent	4
Lambton	7
Lanark	11
Leeds	6
Lennox & Addington	3
Lincoln	14
Middlesex	13
Muskoka	9
Nipissing	3
Norfolk	9
Northumberland	3
Ontario	10
Oxford	16

Parry Sound	1	Rainy River	1	Thunder Bay	4
Peel	6	Renfrew	9	Temiskaming	2
Peterboro	2	Russell	2	Waterloo	12
Perth	11	Simcoe	10	Wellington	36
Prescott	4	Stormont	1	Wentworth	16
Prince Edward	2	Sudbury	1	York	52

Total from Ontario 423

From Other Provinces of the Dominion

Alberta	6	New Brunswick	1	Prince Edward Island	3
British Columbia	13	Nova Scotia	12	Saskatchewan	3

Total from other Provinces 38

From Other Countries

B.W.I.	2	Scotland	1	U. S. of Columbia	2
Japan	1	South Africa	1		
England	2	U. S. A.	4		

Total from other countries 13

Ages and Religious Denominations

The limits of age in the General Course, 1920, arrange from 18 to 45 years. The average age was 21.

Anglican	106	Evangelical	1	Presbyterian	164
Baptist	25	Friends	3	Roman Catholic	15
Christadelphian	1	Lutheran	6	Union Brethren	3
Congregational	7	Mennonite	1	United Brethren	1
Church of Christ	3	Methodist	136	Unitarian	1
Disciple of Christ	1	No religion	3		

Interesting Results on the Farm

In the farm in connection with the College there are approximately 500 acres used for the maintenance of the college flocks and herds. Good crops were harvested last year and a few points of special interest are noted by the Professor of Animal Husbandry, under whose charge the farm is operated:—

It might be well to mention one field which was a mass of twitch after the oat crop was removed in 1919. The land was so badly infested that the field produced a very small crop in 1919. After the oats were removed the land was plowed lightly and tractor-disced twice and then cultivated and harrowed. Later in the fall this field was plowed with a double-disc plow, the front disc cutting six to seven inches deep and the rear disc twelve to thirteen inches. This system brought loose sub soil up and threw it on top of the soddy mass of roots. In the spring of 1920 the field was planted to flint corn in the check-row system. Practically no twitch made an appearance during the past summer, and the field, without fertilizer, produced an excellent crop of flint corn for husking. This looks like a good method by which to rid soil of twitch where the weed has gained a strong foothold.

Besides this it is interesting to note the success of sweet clover as a pasture. In 1919 some 20 acres were seeded with white sweet clover at 15 lbs. to the acre sown with oats. The crop came on well. On June 5th, 1920, 44 head of dairy cattle (nearly thirty in milk) and 8 large brood sows were turned on the sweet clover which would average about up to a man's knee. This stock pastured on the same field until August 15th. All the cattle and pigs did well and the sweet clover saved over 20 acres of oats, which had been sown for annual pasture, so that we were able to cut them for grain and they promise a yield of nearly 80 bushels per acre. Sweet clover seems to be a success as a pasture.

The farm is now laid out into sections and each section is devoted in so far as possible to one crop. We find difficulty in getting enough space for pasture. Sweet clover and the use of peas, oats and red clover mixed for soiling crops help out considerably. Oats at 2 to 2½ bushels per acre to which have been added peas at about a peck per acre and red clover at seven pounds per acre are very useful, cut green, for pigs and cattle. Some of this crop was made into hay this year with good results.

The farm is in a good state of fertility, but we find ourselves a little cramped to handle the large amount of stock which it is necessary to maintain. The four-year rotation—roots and corn, grain, hay, hay or pasture, is still working satisfactorily. Fall work was well finished up notwithstanding the unusually heavy harvest of corn and roots. The year's crop comprised 57 acres of corn, 20 acres of roots, 10 acres winter wheat, 40 acres of barley, 35 acres mixed barley and oats, 85 acres of oats, and 7 acres of peas, oats and clover for green feed, besides hay and pasture.

Field Crop Experiments

About 2500 carefully measured plots are utilized each year for experiments in different classes of field crops. During the past year the distinct and separate experiments which have been conducted in the experimental grounds at the College are represented by the following numbers:—varieties of grains of separate crops, 23, mixtures of grains, 8; selection of seed, 5; dates of seeding, 2; rates of seeding, 5; dates of cutting winter wheat, 1; dates of pulling flax, 1; application of manures and fertilizers, 4; miscellaneous experiments with grain, 12; potatoes, 14; roots, 7; field corn, 4; hay and fodder crops, 19; pasture crops, 2; miscellaneous fodder crops, 2. The number of plots in the individual experiments here referred to would vary from three to four up to nearly one hundred each, according to the requirements of the separate tests. Some of these have been carried out in 1920 for the first time while others form a continuation of experimental work started a few years past. Each year's results are not only valuable in themselves but assist greatly in the accumulation of returns from a series of years which help to furnish data securing information of a very reliable character.

Some Leading Varieties of Farm Crops

Much work has been done in the Field Husbandry Department at the College by securing through importation, selection and hybridization those varieties of field crops which are most likely to give the greatest satisfaction. The following varieties are among the most prominent in the results of the experimental work at the College and in the co-operative experiments throughout the Province: O.A.C. No. 72 and O.A.C. No. 3 oats; O.A.C. No. 21 barley; O.A.C. No. 104 and Dawson's Golden Chaff winter wheat; Marquis and Wild Goose spring wheat; O.A.C. No. 61 spring rye; Petkus winter rye; Common emmer; Rye buckwheat; New Canadian, Arthur and Potter field peas; Pearce's Improved Tree beans; O.A.C. No. 81 soy beans; Hairy vetches; Wisconsin No. 7, Golden Glow and White Cap Yellow Dent corn; Gold Nugget and Longfellow Flint corn; Golden Bantam sweet corn; Black Giant and Mammoth Russian sunflower; O.A.C. No. 1 and O.A.C. No. 2 strains of Yellow Leviathan mangel; Japanese Panicle millet; Early Amber sorghum; Dwarf Essex rape; Sutton's Earliest Drumhead cabbage; Stray Beauty very early, Irish Cobbler medium early, and Dooley, Green Mountain and Empire State late varieties of potatoes; Grimm and Ontario Variegated alfalfas; White and Yellow blossomed sweet clover; and Meadow Fescue, Orchard Grass and Tall Oat Grass. Many of these varieties are grown extentively throughout Ontario and some of them to the exclusion of practically all of the older varieties.

Influence of Seed Grain Selection

In 1920 experiments were conducted in the selection of seed grains of different sizes of each of two varieties. This test belongs to a series of experiments which have been conducted at the Ontario Agricultural College with the object of ascertaining the productivity of different selections of seed of the same variety. In these tests uniform plots were used and exactly the same number of seeds were sown of each selection. The experiments with the different crops have varied from three to nine years in duration through repetitions. There was no attempt to conduct continuous selection and thus present accomulative results but each test was carried on to show simply the influence of one year's selection upon the resultant crop. The tests, however, were repeated over a series of years in order to have the returns as accurate as possible. The comparative figures which will be presented should show approximately what any farmer might realize in crop production through the influence of one year's selection:

Crop.	Selection.	Number of Years Tests.	Average Bushels per acre.
Field Beans	Large seed	3	14.7
	Medium sized seed	3	12.9
	Small seed	3	9.5
	Very small seed	3	7.2
Field Peas	Large seed	6	28.1
	Small seed	6	23.0
	Sound seed	9	29.2
	Split seed	9	10.2
Winter Wheat	Large plump seed	6	46.9
	Small plump seed	6	40.4
	Shrunken seed	6	39.1
	Split seed.	6	9.3
Spring Wheat	Large plump seed	8	21.7
	Small plump seed	8	18.0
	Shrunken seed	8	16.7
Spring Rye	Large seed	5	26.0
	Medium sized seed	5	24.4
	Small seed	5	22.3
	Broken seed	5	16.9
Barley	Large plump seed	6	53.8
	Small plump seed	6	50.4
	Shrunken seed	6	46.0
	Broken seed	6	43.2
Oats	Large seed	7	62.0
	Medium sized seed	7	54.1
	Small seed	7	46.6

It will be observed that in all cases large seed gave better returns than either small or shrunken seed, and that throughout the broken or split seed gave comparatively poor returns. Other experiments in seed selection conducted in a somewhat different way are now in progress. The results up to date show a decided preference for seed of the highest quality.

Live Stock Progress

The beef cattle herds have made progress. A valuable sire was added to the Shorthorn herd early in the College year at a cost of $2,000. His first crop of calves give every evidence of justifying the expenditure. Only two bull calves were sold from the herd, one at $450 and one at $400. All the females were retained for breeding purposes.. The Shorthorn herd never was stronger than it is now.

The small herds of Hereford and Aberdeen Angus cattle are gradually increasing. All female stock is retained to strengthen these herds. An effort is being made to greatly improve these two herds.

In finished steers and in feeders more cattle have been used than formerly. This is a branch of the work that proves interesting and valuable and we try to cover the three beef breeds with stock for class purposes.

For an experiment in steer feeding fifteen steers purchased as calves in August, 1918, were carried through to March, 1920. They carried in five groups of three each as follows:—A. purebred Hereford, Angus, Shorthorn; B. Hereford-Shorthorn cross: C. Shorthorn grade: D. scrub: E. purebred Holstein. Aside from many valuable figures as to cost of feeding, the experiment brought out the following general conclusions:—

1. Breeding is of decided value in economical beef production, and the use of the purebred sire produces steers that are money makers to both feeder and packer.

2. Steers of good beef type make greater and more economical gains in stable feeding, especially during the finishing period, which is the most important from the feeder's standpoint.

3. Beef bred steers of good type could be advantageously stable fed the year round. especially when there is a scarcity of good pasture.

4. Steers turned out in fair to good condition in spring should make economical use of a supplementary grain ration when pasture becomes short; this is especially true of better bred steers.

5. In stable feeding as the grain ration was increased the cost per lb. of gain with the scrub steers increased much more rapidly than with the steers from the purebred beef sires.

6. It has been shown that where the margin is the same between calves and finished steers the better bred the animals are for beef production the more economically will they produce beef.

7. In this experiment the steers by a purebred beef sire made profit over feed 24.5 per cent. higher than steers of scrub breeding: steers of dairy breeding lost 2.9 per cent. over cost of feed.

8. If a dairy bred calf cannot be economically marketed as veal. it would pay to kill him. as he would not pay for feed consumed if marketed as a steer.

This experiment is to be carried on for a period of years.

Dairy Cattle

A number of Ayrshire females have been added to the herd and a small but select lot of Jersey females is being procured. Records of the cows have not been high but the general health and vigor of the herd has improved. All the cows in milk were entered in the R.O.P. and records exceeding 15,000 lbs. of milk were made. Three good herd sires are maintained and an effort is now being made to strengthen the female end of the herds both in numbers and quality. With little more than 20 cows milking at a time the herd turned in $4,524.73 in milk during the year and twelve bull calves were sold for breeding purposes at prices from $75.00 up to $200.00 each.

Lamb Experiment

The experiment outlined in the last report was carried forward another year. In the autumn of 1919. 8 ram lambs, 8 ewe lambs, and 8 wether lambs were purchased on Toronto market. These lambs were thin and scraggy. They were put in to show whether or not it pays to finish lamb and to make out a case against the ram lamb as compared with wethers as feeders. The lambs were put in November 6th, 1919, grain feeding commencing November 19th. They were killed in Toronto January 9th, 1920. All the lambs cost 11 cents per lb. when put in. The ram lambs sold at 16½ cents per lb.; the ewe lambs at 18 cents per lb. and the wether lambs at 18 cents per lb., leaving 1½ cents per lb. in favor of the wethers over the rams.

The spread in price between buying and selling was so wide, the lambs, though of inferior quality, paid to fatten.

It is more profitable to fatten wether lambs than either ewes or rams as shown below:

Profit on 8 rams	Profit on 8 wethers	Profit on 8 ewes	Average Profit on each ram	Average Profit on each wether	Average Profit on each ewe
17.95	$21.29	$17.74	$2.24	$2.66	$2.22

Swine

The new piggery was completed during the year and now the Department has an up-to-date building on high ground and very suitably located for the raising of pigs. The building is 127 feet long and 32 feet wide and provides 10 pens 8 feet wide by 12 feet deep for sows with litters and 14 pens 11 feet wide and 12 feet deep for growing pigs. The building and yards were erected at a cost of $8,000 not including some old lumber used. During the construction of the building the pig feeding work was somewhat upset and experimental work could not be carried forward successfully. However, the herds did exceptionally well throughout the year and turned in the record revenue of $7,215.97. The foundation stock in Yorkshires, Berkshires and Tamworths is strong and Duroc Jerseys, Poland Chinas and Chester Whites are kept as well for classroom.

Sale of Stock

The practice of holding an auction sale was not followed because it was felt that to make a good sale it would be necessary to dispose of too much of the stock needed in the herds. However, upwards of $6,000 worth of breeding stock was sold during the fall. Next year the auction sale will be continued.

Sale of cattle for the year	$9,788 07
" " pigs " " "	7,215 97

" " sheep " " "	1,265 30
" " milk " " "	4,524 73
Other Sales " " "	2,173 20
	$24,967 27

Studying and Controlling Insects

Research work in entomology and measures for the control of insect pests are combined in the work in the field during the summer months in various parts of the Province.

During the past year the important new work in this line has been the discovery of the existence of the European corn borer in Elgin County. This pest was discovered across the line a few years ago and has occasioned considerable alarm, more especially as there is no definite information available as yet as to its life history or exact seriousness. After its existence was discovered in Ontario the first step was to learn the extent of its prevalence. Accordingly the Provincial Entomologist co-operated with the Dominion Entomologist and two Provincial men were placed in the field for scouting work. The borer was discovered in portions of Welland, Haldimand, Oxford, Huron, Elgin, Middlesex and Kent Counties and quarantine regulations were adopted by the federal authorities to prevent the shipment of flint corn on the cob out of the affected area. Steps were also taken to study the life history and habits of the borer during the winter months with a view to recommending, if possible, measures of eradication or prevention next year.

During the season other experimental work was carried on and the main features are thus described by the Provincial Entomologist: —

Cabbage Maggot—The investigation of this insect was continued and is now almost completed. Much new data was obtained during the year and nearly all the important points in the life history and control worked out. There is no doubt now that in corrosive sublimate we have an efficient remedy, but there still remain several important points to solve before we can confidently state the most economical method of using this substance. It is, therefore, the intention to publish a short circular this year giving the most valuable results so far obtained for the grower and next year to prepare in bulletin form a comprehensive account of the insect.

Blackberry Leaf Miner—The study of this troublesome pest has also been almost completed and we are glad to be able to say that after many failures we think that we have at last discovered a comparatively simple method of control by the use of hydrated lime alone or combined with a sticker. Before publishing our results we wish to test this remedy out on a large scale in co-operation with the growers.

Leaf Bugs—This summer two hitherto unreported insects were found to be doing much damage to fruit. One of these proved to be the so-called Green Bug of the Apple, Lygus communis, and the other the White Oak Leaf Bug, Lygus quercalbae. The former destroyed a large percentage of the pears in two orchards near Newcastle and the latter about two thirds of the peaches in an orchard near St. Davids. Several visits were made to both localities during the season and valuable data obtained on both insects. Plans have been made already for testing control measures next year.

Testing Spray Mixtures and Dusts in Orchards

More than twelve acres of orchard composed of large apple trees were used in a careful series of tests to determine the merits of the various orchards sprays and dusts. Unfortunately no very definite conclusions can be drawn from these tests as to the fungicidal values of the different substances, simply because the season was not favorable for a bad attack of disease and all sprays and dusts gave complete control of apple scab and sooty fungus. The results on biting insects were of more value as there were a good many of these insects to combat. Examinations of the different plots at different times in the summer and fall showed that there was very little difference in the effectiveness of the arsenicals in any of the combinations used, whether in liquid sprays or in dusts, and that thoroughness was the most important factor in securing control. One of the orchards, six acres in extent, had over 98 of absolutely clean fruit and the other about 95.

Spraying Cherries to Ward off Brown Rot

In two previous years it was demonstrated that sweet cherries could be prevented from rotting at picking time by dusting them with finely ground sulphur a couple of days before picking. We wished, however, to see whether some liquid spray could not be found that could be applied at this date to secure the same effect and yet not stain the fruit. Soluble sulphur was, therefore, tried this year and though the season was not favorable for the development of rot it looks as if this substance, at the strength of 1½ pounds to 40 gallons of water, will be effective and safe. At greater strengths it causes some burning. It is the intention to continue this work next year.

Spraying Currants to Retain their Foliage

In 1919 we proved very clearly that Bordeaux mixture was much the best fungicide for black currants and that three applications under that year's weather conditions retained the foliage fully two months longer than where no spraying was done. These tests were repeated on a much larger scale this year and while the results were not striking because the season was, as said above, unfavorable for leaf diseases, yet they showed that in spite of this fact Bordeaux helped to give better foliage.

New Disease of Strawberries

The Botanical Department thus reports on a new disease affecting strawberry plants:—

Until recently the leaf spot of strawberry, due to *Mycosphaerella fragariae,* has been considered to be the most serious leaf disease of the cultivated strawberry. During the last two years another leaf disease has been observed which seems to be generally distributed through the southern and eastern parts of the Province. This disease from its appearance can be appropriately called "leaf scorch." Considering the fungus responsible for the disease, it can be designated mollisiose.

In the spring, May and June, the strawberry leaves become covered with small, irregular, purplish spots. The spots enlarge and coalesce until the whole leaf may become involved. When the spots have become quite large they turn ashy brown or dirty gray in the centre and then small fruiting specks or acervulae appear. In these acervulae hyaline, two-celled spores appear. These spores serve to spread the disease to other leaves and plants. Later, in July and August, the entire leaves dry up and the diseased plants take on a scorched appearance as though burned over with fire. It is not uncommon to see whole beds present this appearance and it becomes difficult to distinguish the plants suffering from leaf scorch from those severely injured by drouth and white grub injury.

The fungus causing the summer stage of the leaf scorch has been identified with *Marssonia potentillae* (Desm) Fisch. This is the conidial or imperfect stage. When the plants are mulched the disease may be carried over winter by this stage of the fungus. When the leaves become dead or dry, another stage is produced in the spring following. This later stage is called the perfect or ascigerous stage, and has been identified as Mollisia earlianna (E & E) Sacc. This stage begins fruiting in April and lasts until June and acts as the source of infection in most of Southern Ontario.

Not all varieties are equally susceptible to the disease. The most susceptible seems to be Clyde followed by Glen Mary, Haverland, Senator Dunlop, New Williams in the order given here.

Control measures have not been worked out. From field observations the following procedure would seem to be desirable:—

Clean cultivation.
Removal and destruction of all dead leaves in spring.
Spraying with Bordeaux mixture.

Seed Potatoes and Disease

In connection with the campaign to improve the potato crop of the Province important work has been done by the Botanical Department in studying potato diseases. In co-operation with the Agricultural Representatives and as part of the general plan this work has been undertaken each summer during the past three years; the object in view being to determine the best source from which to obtain seed potatoes as free as possible from the so-called physiological diseases such as Leaf Roll and Mosaic, and which would give the largest yields.

In the first two years trial plots were conducted in every county in Southern Ontario. This year twelve of the chief potato growing districts of the Province were selected in which to carry out the tests. The varieties experimented with were—Irish Cobblers, Green Mountains and Rural New Yorker. The sources of seed were—Northern Ontario, Southern Ontario (selected), Southern Ontario (common) and the Maritime Provinces. The seed from these sources was planted in plots side by side in the twelve different districts. The Agricultural Representatives, cooperating with the farmers in their counties, looked after the planting, spraying and cultivation of these plots. During the summer each plot was inspected for disease by a member of the Botanical Department. This fall the Agricultural Representatives ascertained the yields from the various plots. The following tables summarize the average percentage of leaf roll, mosaic, black leg, foreign, misses and weak plants found in the crops grown from the seed of the three varieties from the four different sources. The tables also show the average yields obtained from each variety from each source.

Irish Cobbler

Source of seed.	Average percentage of Leaf Roll	Average percentage of Mosaic.	Average percentage of Black Leg.	Average percentage of Foreign.	Average percentage of Misses.	Average percentage of Weak.	Average percentage of Yield.
Northern Ontario..........	.27	1.8	.86	.18	6.56	3.61	198.0
Old Ontario (selected)......	3.	.77	.45	.045	4.65	2.	201.1
Old Ontario (common)......	13.	3.3	1.2	2.3	8.2	1.85	164.9
Maritime.................	.77	.36	.409	.9	5.04	2.54	210.1

Green Mountains

Source of seed.	Average percentage of Leaf Roll	Average percentage of Mosaic.	Average percentage of Black Leg.	Average percentage of Foreign.	Average percentage of Misses.	Average percentage of Weak.	Average percentage of Yield.
Northern Ontario..........	.41	1.4	1.7	0.	7.8	2.93	218.3
Old Ontario (selected)......	1.8	22.8	.08	.87	4.02	1.3	215.8
Old Ontario (common)......	1.8	51.7	.12	0.	3.8	1.89	188.2
Maritime.................	.18	1.5	.18	0.	4.5	2.29	218.3

Rural New Yorker

Source of seed.	Average percentage of Leaf Roll	Average percentage of Mosaic.	Average percentage of Black Leg.	Average percentage of Foreign.	Average percentage of Misses.	Average percentage of Weak.	Average percentage of Yield.
Northern Ontario	1.6	5.6	1.08	.04	6.5	3.2	201.7
Southern Ontario..........	1.3	5.08	.66	.04	5.12	2.4	202.3

Experiments in potato disease control were also carried on. In the treatment of Black Scurf or Rhizoctonia a corrosive sublimate solution was used in varying strengths and it was found that corrosive sublimate 1-500 for two hours gave perfect control. Experiments in the control of Leaf Roll and Mosaic were also carried on in cooperation with Federal officials but some years will be necessary before definite conclusions are reached.

"Dry Formaldehyde Treatment" for the Prevention of Oat Smut

This method has been tested for three successive years. In all twenty-eight field trials, under ordinary farm conditions, have been made and some 1,677 bushels of oats treated by this method. The results have been uniformly satisfactory. No injury to the grain has resulted and the control of the smut has been almost perfect. In no case has there been more than a trace of smut in any field in which treated seed was sown, while the amount of smut in the fields sown with untreated seed for checks averaged 5.8 per cent. The advantages of this method over those which have been formerly practiced here in Ontario are, simplicity, rapidity and ease of application. In our experiments here it was found that one hundred bushels of oats could be treated in fifty minutes by this method and that there was no waiting for the seed to dry after treatment; no danger of it sprouting or moulding or being swollen so that it would not run freely through the seed drill. The chief disadvantage of this method is the fact that the strong formaldehyde fumes irritate the eyes, nose and throat of the operator. This disadvantage may be overcome to a large extent by providing for a free circulation of air and by holding the sprayer down close to the grain when the solution is being applied.

Artificial Light and Culling in Poultry

More information was obtained during the year by the Poultry Department on the effects of artifical lighting on egg production. The results so far indicate that where the lights are used regularly so as to maintain fourteen hours of light, allowing hens ten hours to sleep, best results will be secured. Used in this way artificial lighting increases the general production of a flock by about twenty-five per cent. during the short days but has a tendency to decrease egg production during April and May. Too much or irregular lighting appears to cause the birds to moult.

In the breeding work no unusually high individual layers have been tried for or produced during the year but the general average has been slightly improved and the number of poor or inferior layers is getting less each year. The strain being developed may be depended upon to produce about 160 eggs each in their pullet year, but it has not yet been found possible to produce one hundred which when housed together will average 200 eggs each. In addition to the work with Plymouth Rocks, breeding work is being done with White Leghorns and more progress has been made during the past year than in any previous year.

In addition to the work at the College attention is given to improving the poultry of the Province generally. In the first place some supervision is given to the poultry breeding stations which have grown up all over the Province to supply settings to children taking part in rural school fairs. These are not "stations" in the ordinary sense of the term but are ordinary farms which have undertaken to give special attention to poultry and supply eggs of a required standard. There are now 160 of these and the Poultry Department inspects and culls each of these flocks at least once a year and supplies the males to head the pens. About 7,000 hens were culled last year and about 600 cockerels were required for this work. Four flocks were struck off the list as being unsatisfactory but on the whole a large amount of good breeding stock is being distributed in Ontario in this way.

In addition to this work, however, the Department has given about 50 culling demonstrations and lectures at over 40 special poultry meetings in all parts of the Province. In the County of Oxford, for instance, every flock in one whole township was culled and the "scrub" hen eliminated. From this extensive work in culling the conclusion has been reached that about 35 per cent. of the birds are unprofitable as egg producers—one third of the hens kept do not pay for their keep by the number of eggs laid. Aside from the value of the actual culling, the demonstrations have had a high value in the information given on feeding, cleanliness and other subjects.

Wide Range of Interest in Bacteriology

The Bacteriological Department has been able to be of assistance in a very large number and variety of instances. In the distribution of bacterial cultures for the inoculation of legume seed there is a growing interest and 5,260 cultures were sent out as follows:—

Peas, 2,473; Sweet Clover, 951; Alfalfa, 935; Red Clover, 601; Alsike, 192; Sweet Peas, 30; Beans, 24; Vetch, 19; Soy Beans, 17; White Clover, 11; Crimson Clover, 2; Mammoth Clover, 1.

Of the cultures for peas sent out as above, 2,096 were sent to a canning factory for distribution with their seed.

A total of 76 lactic starters and 13 Bulgaricus cultures were sent to creameries, cheese factories and other applicants.

A large number of specimens of various kinds were received for examination. These included 225 specimens of different kinds of live stock suspected of disease or abnormal condition, 68 samples of well water, of which only 8 were passed as fit for consumption, and about 20 samples of milk. In connection with the examination of milk it was found that even some pasteurized milk showed high bacterial counts and greater supervision is necessary on the part of those concerned.

Improving Public and Private Grounds

An important recent development is the interest shown throughout the Province in beautifying public and private grounds. This is largely the result of the assistance given by the landscape garden branch of the horticultural department. In so far as the capacity of a limited staff will permit, advice is given and plans supplied in response to requests from all parts of rural Ontario. The demand for work of this kind is shown by the fact that during the past year plans for the improvement or establishment of parks, school grounds and farm homes were supplied as follows:

Public parks, 15.
School grounds, 55.
Churches and public buildings, 10.
Farm and private home grounds, 42.

Power on the Farm

The Physics Department has been rendering service to the farmers of the Province by supplying practical information on farm power and associated subjects by correspondence as well as short courses. Numerous enquiries have been received and specific information given in every case possible. Farmers should feel free to avail themselves of this service even to a larger extent. The subjects on which information is sought reflect present day rural problems and include such subjects as: character and installation of lightning rods, tractors, labor saving devices for the home, gas and electric farm equipment, cold storage and many similar subjects. In the matter of improved equipment for Ontario farms and homes the department has prepared data of approximate cost of equipment and installation of appliances recommended as follows:—

(1) Lighting system (gas-electric outfit) $575 to $1200.
(2) Tankless water system (electrically operated) $185 to $450 where electrical system is already installed.
(3) Pneumatic water system, hand operated including installation $180, gas operated including installation $350, electrically operated including installation $325.
(4) Septic tank including installation, $75 to $100.
(5) Chemical toilet including installation, $75 to $175.
(6) Hydraulic ram and installation, $150 (average sized installation).
(7) Plumbing fixtures:—toilet, bath, sinks, etc., $150 to $500.
(8) Electric toaster, $5 (approximately).
(9) Electric washer, $200 (approximately).

The prices are changing monthly and differ for different places in the Province and particulars re cost of installation may be obtained from local dealers.

Soil Survey Work

Some further progress has been made with the soil survey work carried on by the Chemistry Department but the work has not been advanced as rapidly as expected on account of the death of one of the important members of the staff in charge of the field survey. Most of the Province had been covered, however, different types charted and samples taken for analysis. From the notes and maps thus secured a bulletin is now being prepared and the work of analyzing the soils of many sections both east and west is being completed.

In the meantime some demonstration plot work has been undertaken. A plot on the College farm has been undertaken as illustrative of the upland area. A plot has been taken in Norfolk County as representing light sand soils and another in Welland for clay soils.

Helping Solve Chemical Problems

By its work of analysis the Chemistry Department has not only kept in touch with the problems facing the farmer but has aided in the solution of many. Altogether over 1200 samples of various kinds have been analyzed during the year. These included wheat and flour, soils and fertilizers, domestic water, feeds, honey, maple syrup, lightning rod materials, poisons and many other materials.

The withdrawal of government control of flour mills and the return to old grades of flour has caused an extra demand for testing, especially as many bakers are seeing the advisability of buying their flour on the basis of standard tests.

Soil examinations further emphasize the conclusion previously reached that the main mineral deficiency in Ontario soils is lime and phosphorus.

Of the 47 samples of well water examined 90% were condemed as being unfit for consumption, showing the great need for caution on the subject.

Examination of feeds, which more properly comes under the Feeding Stuffs Act administered by the Federal Department, reveals the fact that many mill feeds contain weed seeds which are poisonous to young stock, especially pigs. These seeds are rich in protein and fat and make the guaranteed analysis show up well but are often fatal to young stock and the feeder should take steps to adequately protect himself in these matters.

High Prices Retard Drainage

During the past year the drainage staff have noted less activity than for several years past in the installation of tile drains. This has not been due to a lack of appreciation of the value of drainage so much as to the shortage of help and the high cost of tile and labour. Notwithstanding this there has been a very considerable demand for drainage surveys, as many farmers find it pays even with the high prices. Five men are kept busy most of the season in meeting the demand and 129 surveys were made in 31 different counties. The counties of Lambton, Kent, Bruce and Wellington led in the demand for surveys. An effort has been made to make surveys and supply blue prints only where there is a real immediate intention to instal the drains. To ascertain how far this had been done where surveys were made in the past a questionnaire was sent out to those for whom surveys were made in 1916, 1917 and 1918. Replies were received from 245 farmers and these showed that work had not been started in 30.8% of the surveys. Of the others 26.5% had finished and 41.7% partially so. Shortage of help and high cost of materials were given as the reasons where the work had not been carried out. The replies also brought many testimonies to the value of drainage where it had been done, one man stating his crops had been doubled since his farm was tiled.

In addition to the survey work some educational work has been done among ditching machine operators. Short Courses were conducted at Guelph and Chatham and ten attended the former and twenty the latter. It is felt a great deal of good can be done in this way.

Work of Farm Survey Department

1. A survey of 410 Oxford County farms with special reference to cost of milk and effect of purebred bulls—results published in Bulletin 275 and in Bulletin now under preparation.

2. A survey of 385 Middlesex County farms including cost of beef production and economic position of grazing land—published in Bulletin 278 and in Bulletin now under preparation.

3. A survey of 363 Dufferin County mixed farms and publication in Bulletin 278 of results thereof.

4. Completion of 1919 survey of 340 Dundas County farms with special reference to milk costs and the relative profitableness of cheese factories and condensors as markets for milk—results published in Bulletin 278.

5. A survey of 265 Durham County farms with special investigation into the economy and costs of apple production—results published in Bulletin 282.

6. A survey of 175 fruit farms in the Niagara district for the year 1920. Field work completed Jan. 10th. 1921, and survey now being compiled and analysed.

7. Special detailed investigation into costs of market milk on 100 York County and 64 Oxford County farms under direction of the Ontario Cost of Milk Commission. Reports issued under dates of Sept. 3rd. 1920, and January 15th. 1921, and used by Board of Commerce in settling questions of milk prices in Toronto and other eastern cities.

8. Special investigation into costs of producing tomatoes on 49 Niagara farms. Report lately published in leaflet form by Dept. of Agriculture.

9. Special detailed investigation into cost of production of beef with special reference to high freight rates on live stock and their effect on the industry. This investigation commenced February 1, 1921, and is about completed.

10. Inauguration in Agricultural Representatives Short Courses of instruction in Farm Bookkeping, Farm Management and Farm Business.

11. Development at the Ontario Agricultural College of a complete undergraduate course for all classes in Farm Economics, including Farm Bookkeeping, Farm cost Accounting and Farm Business Management.

12. On April 13, 1920, the Department started a detailed investigation into the actual cost of production of all farm products grown in Ontario. There was installed on about 60 farms, carefully selected as representing average conditions in the type of farming followed, dairy farms in Oxford County and mixed farms in Dufferin County, a complete set of books to record all transactions and to distribute the labour of the farm among the different crops and live stock and to apportion the farm feed among the different classes of live stock on the basis of amount consumed. By this means exact information on the costs of production of every agricultural product on Ontario farms can be obtained.

ONTARIO VETERINARY COLLEGE

For the session which ended April 30, the total number of students in attendance in all classes numbered 78. Of this number 14 graduated and received the diploma of the College and three were granted the degree of Bachelor of Veterinary Science (B.V. Sc.) by the University of Toronto.

For the current session which opened October 1st, the total attendance is 95, an increase of 17 over the previous session. This number would no doubt have been much larger but for the change in the standard of admission, which now approaches Junior Matriculation or its equivalent. This change in the standard of admission was made in uniformity with the requirements of the American Veterinary Medical Association and the standards being adopted by all the leading Veterinary Colleges on the continent. It represents a distinct advance in the profession and should result in a much better equipped veterinarian. At the outset it was to be expected the change would reduce the attendance but an energetic publicity campaign on the part of the College secured a freshman class of 25. The demands upon the up-to-date veterinarian and the opportunities in the profession are increasing and every effort will be made to see that the College in courses and teaching staff keeps pace with both.

Veterinary Practice Act

Legislation of special importance to the veterinary profession was passed at the last session of the Legislature when what is known as the Veterinary Practice Act was adopted. By this measure every person desiring to carry on practice as a veterinarian must have a certificate from the Minister of Agriculture and the Minister shall grant certificates only to such persons as are recommended by the Veterinary Practice Board composed of three members. It is further provided that the Board may recommend persons who are graduates of the Ontario Veterinary College or some other college of equal standing, and persons who have been carrying on practice for five years prior to the passing of the Act. It was recognized that where men had been practising in good faith for a number of years it would be unfair to take away their means of livelihood and hence provision was made as stated. Organization has been effected in accordance with the Act and certificates will be issued by the first of the year when this goes into effect. The Act aims at the elimination of what are known as non-graduate practitioners, while at the same time it endeavors to avoid injustice to men who for five years or more have been depending for their livelihood in whole or in part on a certain form of practice.

PUBLICATIONS AND STATISTICS

The work of compiling agricultural statistics was carried on in co-operation with the Federal authorities. The results are published from time to time as completed.

The distribution of the Annual Reports has been continued and the following are the figures of the numbers printed for distribution:—

Minister's Report	6,000
The Ontario Agricultural College	6,000
The Experimental Union	20,000
Agricultural Societies and Field Crop Competitions	21,000
Horticultural Societies	21,500
Vegetable Growers' Association	5,000
Live Stock Branch	20,000
Stallion Enrolment Board	3,500
Women's Institutes	40,000
Dairymen's Associations	6,000
Entomological Society	3,500
Fruit Growers' Association	4,000
Beekeepers' Association	4,000
Agricultural Statistics	15,000
Vineland Horticultural Experimental Station	3,500
Corn Growers' Association	6,000
Total	185,000

The following crop bulletins have been printed for distribution:—

141	November, 1919	15,000
142	April, 1920	4,000
143	May, 1920	5,000
144	August, 1920	6,000

Other bulletins printed for distribution were:—

*266	Butter and Cheese making	15,000
274	Sheep	30,000
275	Farm Managment—Part I	30,000
276	Bee Diseases	15,000
277	Motor Transportation	12,000
278	Farm Management—Part II	30,000
279	Community Halls	12,000
		144,000

*New edition.

Circulars were printed for special dstribution as follows:—

25	Summaries of W. I. Conventions	5,000
26	Ice on the Farm	100,000
27	Transferring of Bees	15,000
28	Meetings and Speakers of W.I.	5,000
29	Disinfectants	30,000
30	Cream and Milk Act	9,000
31	The uses of Milk and its products	10,000
32	Recipes on Vegetables, Fruits and Salads	30,000
		229,000

AGRICULTURAL AND HORTICULTURAL SOCIETIES' BRANCH

Starting in a modest way over a century and a quarter ago with one small Society at Newark, now known as Niagara-on-the-Lake, the Agricultural Societies in Ontario at the present time number 354, all doing good educational work in in the improvement of live stock, farm produce, ladies' work, dairying, fine art and other lines of industry for which prizes are offered at Exhibitions. The object of a Society as laid down in the Act is to promote improvement in agriculture, horticulture, arboriculture, domestic industry, manufactures and the useful arts.

The majority of the Agricultural Societies hold Fall Fairs and Exhibitions. most of them lasting two days, but some three and four. In some cases, children's school fairs are held in conjunction with them with excellent results as to attendance.

A line of work which twelve Societies have taken up, principally in Essex County, is the purchasing and maintenance of pure bred males to be used by their members. The beneficial result is seen in the better class of stock now in evidence in that section of the Province. Bulls and boars are the males most generally kept, but legislative grants are also available for stallions and rams in addition to the above. Besides the grants on live stock, these Societies get a maximum grant on membership of $50.

Field Crop Competitions

Field Crop Competitions from year to year show a decided advance. The favorable season of 1920, coming after two years of crops below the average, induced Agricultural Societies which had not attempted this line of work previously to make entry. One hundred and seventy eight Societies took part as compared with one hundred and sixty two in 1919, the largest number yet entered. Oats were the favorite crop of the majority of the Societies, followed by potatoes, corn, fall and spring wheat, barley, turnips, peas, mangels and clover in the order named.

All the seven prize winners in the local competition as well as those who scored 85 points and over are eligible to compete at the Canadian National and Central Canada Exhibitions and the Guelph and Ottawa Winter Fairs. The prize winners in the Standing Field Crop Competition are obliged to show a sheaf at their local fair, provided that the Society offers three prizes for same, viz. $5, $3 and $2. The exhibits from the Field Crop Competitions this year at the Guelph Winter Fair were the most numerous and best in quality ever entered at that exhibition where large displays have been the rule for several years.

Fairs and Exhibitions Convention

The benefits arising from the meeting together at least once a year of men engaged in any particular line of business are self evident. Matters of the greatest importance to them can be discussed, and definite lines of management and procedure determined. The annual Convention of the Ontario Association of Fairs and Exhibitions, held during the month of February in Toronto. gives the delegates from all the Agricultural Societies of Ontario the necessary opportunity for meeting together. hearing suggestions and solving the numerous questions which arise from time to time. The Association is also the medium for conveying to the Ontario Government the wishes and requests of the Societies on matters of importance to the Societies.

Horticultural Societies

Last year saw a very large increase in the number of the Horticultural Societies of Ontario. There are now 120 doing excellent work in the beautifying not only of cities, towns and villages but rural sections and homes as well. The membership has increased to 28,000 and will probably reach 50,000 in a few years. Already there are several applications from other towns and townships for incorporation next April and the leaven is working fast all over the Province. Lecturers are in great demand for places where hitherto there have not been any organized Horticultural Societies.

Ontario Vegetable Growers Association

The number of branches of this Association has increased and the membership is larger than ever before in its history. The crop and garden competitions held last year had more competitors than any previous ones. The crops were heavy and prices in the earlier part of the season were good, but increased production later in the year caused a slump in prices and large quantities of the crops were allowed to remain in the fields unharvested, more especially tomatoes and cabbage. Insect pests and fungus diseases in many sections proved a serious drawback to the work conducted by the members. On the whole, 1920 was a fairly prosperous year for the man engaged in the vegetable industry. The exhibits from the prize winning fields at Toronto, Ottawa, London and Kingston were very creditable and probably surpassed previous years.

Ontario Plowmen's Association

This Association has increased its membership and the number of its branches and successful local matches were held by all of them, at which substantial prizes were offered. Branches have been formed in Northern Ontario this year. Many young farmers are becoming interested through this Association in the better cultivation of the soil. The International Plowing Match, Tractor and Farm Machinery Demonstration held under our auspices in Hamilton was the largest and most educational thing of the kind ever held on this Continent. Here could be seen in operation all types of machines used on Canadian Farms. About 50 tractors were in operation and silo filling, hay pressing, wood cutting, threshing all run by 20th Century power machines proved interesting to the thousands of people who were in attendance each of three days of the Demonstration. Seventy-five farmers with team-drawn plows competed for the $1,600 prizes offered by the Association.

LIVE STOCK BRANCH

Stallion Enrolment

For the year ending July 31st, 1920, the number of stallions was 1,659, which with 18 horses which received an interim certificate and 6 which paid fees, but not having furnished sufficient information to the office, did not receive enrolment, make a total of 1,683 for the year 1920. The table of breeds show that over 80% of enrolled horses belong to the heavy draught breeds, and of the heavy draught 70% are Clydesdales. Of the light breeds the great majority are Standard-breds.

The high prices secured for other classes of live stock and the greater risk and expense in rearing horses has tended to lessen breeding operations in this Province, and as a consequence first-class horses are commanding very high prices.

As a result horse raising should prove very profitable in Ontario for the next few years.

The increased cost of stallions and the much greater increased maintenance cost of same, along with the light demand for service, has placed the stallion owner in a very unfavourable position. In order to secure the best horses for breeding purposes in this Province it should be the policy of the mare owner to patronize horses of outstanding quality. The stallion owner and the owners of mares are mutually dependent upon each other for success, and it is hoped that the breeders of horses generally throughout the Province will encourage by their patronage the introduction and using in the Province of the highest type of stallion. The premium system which was instituted in 1917 has proved of considerable assistance in retaining in the Province a number of high class stallions which would otherwise have been sold to leave it.

Co-operative Shipping of Wool

This Branch has co-operated with the Ontario Sheep Breeders' Association for the past four years, in the marketing of wool. The wool is assembled and graded at the Winter Fair Building, Guelph. The selling has been done by the Co-operative Wool Growers. During 1920, 600,510 lbs. were collected and graded at Guelph.

The following are the prices obtained from the various grades:—

Fine Medium Clothing	23c.
Fine Medium Combing	60¢
Medium Combing	52¢
Medium Clothing	20¢
Low Medium Combing	42¢
Low Combing	33½¢
Coarse	24½¢
Burry & Seedy	25¢
Soft Cotts	20¢
Hard Cotts	20¢
Dead	14¢
Gray & Black	13¢
Tags	8¢
Sisal	35¢
Mohair	40¢
Damaged	14¢
Fine Washed	70¢
Coarse Washed	64¢

Winter Fairs

The Ottawa Winter Fair held in January, 1920, was the most successful in the history of the Fair, there being a large number of entries in almost all departments. The quality of the exhibits in the horse, dairy cattle and poultry departments was very noticeable.

The Ontario Provincial Winter Fair held in Guelph in December, 1920, also made a record in almost all departments.

There was a particularly large and high quality exhibit of beef cattle, sheep and swine. One of the most noticeable features was the large number of new exhibitors. In several classes of beef cattle there were over twenty entries. The Grand Champion prize of the show was won by a young man who had never fitted animals for a show ring before. The seed section was also favored by exhibits of exceptionally high quality.

Encouragement of Sheep Industry

In addition to the twenty-eight flocks of sheep which have been placed in various parts of the Province under the scheme inaugurated in 1916, assistance has been given in the formation of sheep clubs. Two clubs were formed during the year 1920. In each case there were six members. Each member was furnished with a flock of ten or twelve ewes and a pure-bred ram. He agrees to feed and care for the sheep in the best manner possible and to accept advice from the officials of the Department in this respect. After the second year, he agrees to make returns of a certain number of sheep each year until at the end of the fifth year, he has returned to the Department the same number of sheep as he originally received. The members of the club further agree to combine to market their wether lambs in a co-operative shipment in the fall.

Co-operative Shipment of Live Stock

The assistance in shipping pure-bred stock from Ontario to the West has been continued as in several years previous, but the high freight rates greatly reduced the numbers. The stock is collected under the direction of the live stock branch, and a man is sent in charge of car load lots to look after distribution in the West.

The following table gives a complete record of the work for a number of years past:—

Year	Horses	Cattle	Sheep	Swine	Total
1908	22	74	14	15	125
1909	25	70	84	4	183
1910	39	51	36	7	133
1911	58	51	51	18	178
1912	51	45	24	20	140
1913	47	71	107	21	246
1914	49	97	34	20	200
1915	28	104	76	8	216
1916	59	185	100	22	366
1917	70	269	196	15	550
1918	67	250	180	4	501
1919	24	154	154	4	336
1920	18	110	37	6	171

Pure Bred Sales

During the past year twenty-three Associations which were formed for the purpose of holding annual sales of pure-bred live stock received a grant from the Department. The amount of this grant was $3.00 per head for each animal included in the sale, provided the Association has complied with the requirements of the Department and no Association receives more than $150 for any one sale.

Poultry Associations

Fifty-three local poultry associations received grants to assist them in holding poultry shows during the year. In addition the Department supplied sixty-nine judges for shows, and sixty-seven lecturers to assist at meetings held by these clubs with the object of encouraging an interest in poultry raising.

In June, 1920, a Convention of representatives of these poultry associations met at the Ontario Agricultural College, Guelph and arranged circuits for shows so that there should be no conflict in dates.

Horse Shows

The number of horse shows receiving assistance from the Live Stock Branch is not as large as it was previous to the war. But the past year has witnessed an increase in the interest in horse breeding and more shows were held than in 1919.

INSTITUTES BRANCH

Developments in the field educational service of the Department of Agriculture since the beginning of the war have resulted in more and more dependence being placed on the services of the men employed throughout the year, and a marked decrease in the holding of meetings in series, or what was known for many years as Farmers' Institute Meetings. With Agricultural Representatives in all but one county to direct the various activities in the interest of Agriculture, and with specialists in the various branches of the Department of Agriculturt at Toronto and the Agricultural College, together with the staff of Dairy Instructors and other regular employees of the Department, available, at all seasons, the need for Boards of Agriculture to plan for meetings has not been felt in many districts. Meetings in the few counties which have continued their Boards of Agriculture along the old lines of work have been much appreciated by those who attended, although the number taking advantage of the service has not been up to the standard of some years ago.

186 Board of Agriculture meetings were held throughout the year to which a gentleman speaker, and in most cases a lady delegate, were assigned. This Branch also sent speakers to 132 Farmers' Club meetings, and furnished from one to three instructors for each of eleven Judging Courses of from one to several days duration, making a total of 362 sessions, with an average attendance of fifty-two, making a total attendance of 18,824.

Among subjects asked for by the Farmers' Clubs were the following:—

Dairy Cattle and Dairying.
Programmes for Club Meetings.
Apple Packing.
Feeds and Feeding.
Consolidated Schools.
Rotation of Crops.
Farm Water Supply.
Commercial Fertilizers and Barnyard Manure.
General Agriculture.
Co-operative Buying and Selling.
Breeding and Feeding Beef Cattle
Heavy Horses.
Sugar Beets.
Labor Saving Devices for the Home
Poultry.
Tobacco Growing.
Management of a Mixed Farm
Soils.
Farm Water Supply and Sewage Disposal
Hogs.
Clovers and Grasses.
Vegetable Growing including Potatoes.
How to organize a Co-operative Creamery Company
Horse Breeders' Club.
Drainage.
Corn Growing.
Sweet Clovers.
Organization and Operation of an Egg Circle.
Balanced Rations for Stock of all kinds.
Elements contained in the different kinds of Grain and Feeds.

Factory Meetings

A number of meetings were held under the auspices of the cheese factories and creameries, in most cases at the time of the regular annual meeting. For the most part, the dairy instructors attended these meetings, held at 256 points with a total attendance of 11,400.

At these meetings advantage was taken of the opportunity to impress upon the producers the importance of clean methods and proper cooling in the production of milk and cream. There has been a gradual improvement in this respect, but the desired improvement will not be secured until payment is made on the quality basis.

Women's Institutes

The activities in connection with Women's Institute work during the past year have been numerous, the individual Branches in most cases planning a definite line of work for the year, depending almost wholly upon local initiative and local talent to carry on the meetings devoted to home problems and community responsibilities. Nearly all Branches took advantage of the opportunity to secure a speaker for the regular summer series of meetings, or at a special meeting held at some other season of the year, and a few had departmental speakers for two or more meetings. In a number of cases where Branches have taken advantage of a demonstration-lecture course, they have not asked for a speaker at another time.

The co-operation of the Institutes in connection with School Medical Inspection, Travelling Libraries, the establishment of permanent Libraries, introduction of the Hot School Lunch, Consolidation of Schools, the establishment of Community Halls, Health campaigns, welcome extended and assistance given to the wives of soldier settlers, assisting the Immigration Department in placing domestic help in suitable homes, and many other lines of activity, have helped to emphasize the importance of an organization representative of the whole people, ready to accept responsibility in community activities which cannot be dealt with effectively by individual effort.

In accordance with the usual custom, a Conference of Workers was held in early April when the following programme was presented:—

"General Responsibilities and Opportunities of the Institutes"; "Programme for Standing Committees"; "The Rural School Nurse and Medical Inspection"; "The Hot School Lunch, and Teaching Domestic Science, Manual Training, Sewing, etc., in rural schools"; "The Work of Home and School Clubs"; "Farm and Domestic Labour"; "Consolidation of Schools"; "Travelling Libraries"; "Rural School Fairs"; "Co-operation with Agricultural Fall Fairs"; "Girls' Clubs"; "Demonstration-Lecture Courses"; "Re-modelling the Farm Home, and Labour Saving Devices"; "How to Make the Monthly Branch Meetings a Success"; "The Health Needs of the Day"; "Committee Work in the Institute"; "Comptetitions along practical lines among the Members".

Conventions were held at Ottawa, London and Toronto as usual, and in addition a Convention was held at Fort William to serve the Institutes in the far-western section of the Province. All these Conventions were well attended, and the reports presented most gratifying. Representatives were appointed at these Conventions to the Board of the Federated Institutes of the Province.

Demonstration Lecture Courses

An important branch of Women's Institute activity is the holding of Demonstration-Lecture Courses. These courses have, for several years, included a series of ten lectures ond demonstrations given in two week's time.—"Home Nursing and First Aid," "Sewing" and "Domestic Science." The instruction has been made as practicable as possible.

During the year, courses were held as indicated below:—

Course.	No. of courses.	No. who took advantage of course.	Total Attendance.
Home Nursing	43	1,988	16,550
Sewing	35	526	4,516
Domestic Science	28	1,296	7758
Total	106	3,810	28824

A number of these courses, 27 in all, were held at the same time and place as course conducted in Agriculture by the Agricultural Representative. At several of these courses, both the girls and boys took advantage of some features of work of mutal interest, such as dairying, poultry raising, bee-keeping, and some of the lectures on health. With the scarcity of nursing and medical service in many rural districts, and the great difficulty of securing seomstresses, these two lines of work are especially appreciated.

As a result of the holding of Demonstration Lecture Courses, a number of Girls' Clubs or Junior Women's Institutes have been organized and the programme of work undertaken by some of these societies has proven of great interest and value to the members. Among the lines emphasized by the Girls' Clubs are,—helping the school fairs, canning competitions, the study of books on Governments and good citizenship, the organization of good sports and amateur plays, the encouragement of the reading of wholesome literature, the consideration of health problems of special interest to girls and other features which lead to the best social life and the highest ideals among the young people of the community.

Dairy Branch

The importance of the dairy industry in Ontario is shown by the following table which is based upon actual returns for the greater part of the season so far as cheese and butter are concerned, and a careful estimate has bee made of the other items given:

Estimated Output of Dairy Products for 1910

	Pounds.	Price.	Value.
CHEESE (886 Factories), 7% decrease	96,000,000	26½c	$25,440,000
BUTTER (195 Creameries), 9% increase	38,500,000	55c	21,175,000
CONDENSED AND POWDERED MILK			10,000,000
DISPOSED OF BY:			
Factories, Creameries, Condensaries, Milk Powder Plants, in the form of Ice Cream, Milk, Buttermilk, Cream, Whey, Soft cheese, Casein, etc			11,030,000
FARM DAIRY BUTTER, Milk used on the Farm, Town and City Milk Supply, Ice Cream, etc. (estimated)			33,000,000
			$100,645,000

Realizing the importance of the dairy industry, the Department maintains the following staff:—A director of dairying with two chief instructors, one for eastern and one for western Ontario. The field staff for western Ontario includes four cheese factory instructors. four creamery instructors, two inspectors under The Milk and Cream Products Act and one inspector to look after the Cream Gathering Stations. In eastern Ontario the field staff includes eighteen cheese factory instructors and one creamery istructor with a inspector to check up the testing of milk and cream. All these instructors are available to give instruction in methods of testing and to do a limited amount of checking up work.

Dairy Schools at Guelph and Kingston are also maintained, with a competent staff in each. Regular courses of three months, together with short courses in butter-making, cheese-making and milk testing are provided for. We also have a butter grading station in Toronto with a chief grader and two assistants.

Every factory and creamery in the Province is visited periodically and where special trouble arises assistance is sent at the earliest hour possible.

The work of daily instruction, butter grading and instruction in the dairy schools was conducted on much the same lines as in previous years, with a considerable increase in the amount of butter graded. The dealers and creamerymen have come to appreciate the fact that with a falling market and an increased output, the necessity for buying and selling on a quality basis is unquestioned.

Butter Grading

The number of churnings graded was 8,469 from 69 creameries, representing about 7,000.000 pounds of butter, possibly over 50% of the butter put up in 56 pound packages. 87%of this butter was made from pasteurized cream. 51 creameries report as pasteurizing all their output. 5 pasteurized part, and 13 did not pasteurize any. The grading service for butter is being much appreciated and will, no doubt, be considerably extended another year.

Grading of Cheese

The grading service furnished by the United Dairymen Co-operative, Ltd., an Ontario company which began operations in the spring of 1920 with head offices in Montreal. graded something over a million dollars worth of Ontario cheese last year, and reports as to defects in the cheese were placed in the hands of our instructors and enabled them to correct the defects with despatch. There is no service. possibly, which can be made of greater value to our dairy industry than a uniform general system of grading and we welcome such services.

The general quality of Ontario cheese is of high grade, and this branch of the industry is still the barometer for Canadian Dairy Goods.

Short Courses for Butter Makers

With a view to stimulating a keener interest in butter-making and establishing more uniform up-to-date methods, special courses for butter-makers were held at the Dairy Schools at Kingston and Guelph. The programmes presented were of a thoroughly practical character and discussions and lines emphasized were determined largely by the questions asked and the views expressed by the men in attendance. These short courses were very much appreciated by the creamerymen.

In addition to the regular services of instruction and the grading station, we provided inspection for Cream Buying Stations, and this service resulted in greatly improving sanitary conditions and establishing more uniform up-to-date methods in testing the cream.

The Milk and Cream Purchase Act

This legislation provides for checking up of tests made of cream, and of milk where the butter fat content is used as a basis for payment. Immediately this Act became operative, greater care was shown on the part of those responsible for the testing. The three inspectors who devoted their time to administering this Act did much to establish uniform up-to-date methods. There is no doubt that as a result of greater care on the part of those responsible for testing, the producers of milk and cream benefited materially. The Departmental representatives approached this work from the standpoint of education and instruction rather than prosecution, although it was found necessary in a few instances to presecute. The field has been well prepared for administering this Act effectively during the coming season.

Several new creameries were established during the year and prospects are for several more to be opened up next season.

The high prices of labor and the excessive cost of equipment has resulted in many owners not making the improvements which they felt the need of. Many of the creamerymen, however, have put in pasteurizing equipment and gone to considerable expense in improving their plants so that they may follow up-to-date methods. There is no doubt that with improved labor conditions and a decline in prices for equipment and material, the cheese industry will be further developed.

The farmers of Ontario have shown every confidence in the future of the dairy industry by investing large sums in herds. buildings and equipment during recent years. In eastern Ontario alone nearly 300 silos were erected in 1920.

FRUIT BRANCH

Perhaps no branch of agricultural industry in Ontario suffered so much as the result of the war as orcharding, and this was especially so with apple orcharding. Small fruit growing owing to the demand for jams, was profitable despite the shortage of labor, and the acreage in strawberries and raspberries increased rapidly. On the other hand, a variety of conditions over which the grower had no control, seriously affected the growers of tree fruits of all kinds.

Since the war ended, growers have been making efforts to bring the orchards back again. Last season owing to heavy crops, continued shortage of labor and packages, poor transportation and marketing facilities. this progress received a set back in some localities, although in others good prices offset to a large extent these difficulties. With improved marketing facilities promised in the Niagara fruit belt through Niagara Peninsula Growers Limited and the success of the Niagara District Grape Growers Limited, the men engaged in fruit growing there have reason to look forward to better conditions than for years past.

Renewed interest has been shown in apple growing and the Federal and Provincial fruit branches have both received many requests for assistance during the past winter. Spraying, pruning and packing have been the subjects of most discussion, and undoubtedly greater attention will be given to the apple orchards in those counties where commercial plantings exist. Not many orchards will be set out owing to the scarcity and high prices of stock, but a large number of the orchards planted from 10 to 15 years ago are now coming into bearing.

The leases on the demonstration orchards of the Department expired in 1920 after these orchards had been cared for in most cases seven years. Spraying tests have been carried on and the results used in preparing the spray calendar issued by the Department. Good spraying, manuring and tillage have resulted in excellent crops, even the off years in most cases giving fair returns for our work, the crops in the five orchards in 1920 being as follows:

	Trees.	Boxes.	Barrels
Wellington (Prince Edward)	250	935	....
Whitby (Ontario)	300	714	....
Collingwood (Simcoe)	300	141	148
Simcoe (Norfolk)	330	737	692
Thedford (Lambton)	230	1,715	618

Work on Insect Pests and Plant Diseases

Inspection of Nurseries—The inspection of the nurseries of the Province for San Jose scale has been carried on as usual. Three men have been steadily employed in this work throughout the summer. A total of more than 1,000,000 nursery trees were examined individually. Very few of these, not more than 1 in 40,000, were found infested and therefore destroyed. Special attention has been given as usual to nursery surroundings in order that these may not be a source of reinfestation of nurseries. Inspectors are instructed to inspect all nursery surroundings for half a mile in every direction late in autumn and to notify the owners early wherever special steps are necessary for cleaning up the following spring.

FUMIGATION OF NURSERY STOCK—The practice of having our own inspectors conduct the fumigation of all nursery stock in districts infested by San Jose Scale has been continued. The Provincial Inspector himself, does this for the smaller nurseries and also inspects the work of the other inspectors and tests the fumigation buildings from time to time to insure their being air-tight and satisfactory. Several nurserymen have, during the last few years, been forced to construct new fumigators, the old ones being no longer satisfactory.

As a result of considerable correspondence an arrangement has been made between the Fruit Branch and the Nova Scotia authorities by which Ontario Nurserymen may ship their stock into Nova Scotia without further inspection or fumigation at point of entry provided that the fumigation of this stock in Ontario be done by the Provincial Fruit Pest Inspector and a ceritificate to this effect be attached to each package or shipment. This is a big boon to our nurserymen and opens a very desirable market to them. It is also an advantage in every respect to Nova Scotia.

ORCHARD INSPECTION—There is little new to report in this work. Yellows and Little Peach are still being well kept under control wherever there is a good inspector. It is regretted, however, that two important townships like Niagara and Grantham have no inspectors, because a good inspector is of great value to fruit growers in many ways besides his regular inspectional duties: in fact, he is often the best advisor available, especially for inexperienced growers. Half the salary of these inspectors is paid by the Department.

The San Jose scale situation, though satisfactory so far as nurseries are concerned, is not quite so satisfactory in some of the municipalities; because the great decrease in the amount of scale effected by the winter of 1917-18 caused many growers to become careless and believe the scale could henceforth be diregarded. In consequence this insect has been gradually increasing throughout the Niagara district and will soon be as destructive an enemy as before the winter of 1917-18. Therefore, considerable effort will be required to awaken men to the importance of keeping it under full control, as they can easily do if they are careful in the regular spraying operations.

Horticultural Experiment Station

From a fruit crop standpoint, the season of 1920 was an excellent one. There were good crops of all kinds of fruits in the Station orchards with the possible exception of black currants. Vegetables also were good though the summer was comparatively cool for best results. However, a long open fall permitted of crops such as tomatoes and corn maturing well.

Growth on fruit trees continued very late and was only checked by a quite severe cold spell in November. Undoubtedly, there will be a considerable amount of winter injury due to this late growth.

In experimental work, two new projects were started in the spring of 1920. A six acre apple orchard consisting of the varieties Spy, Baldwin, McIntosh, Duchess and Wealthy was planted for further studies in the pruning of the apple. The young trees have come along remarkably well and with very few deaths. A fertilizer experiment with tomatoes was also planned and carried out, results of which will be given in the Annual Report of the Station.

It had also been planned to set out a six acre peach orchard to study the interrelated problems of pruning, soil fertility and distance of planting. However, nursery stock was not to be had at any price so that the project was necessarily delayed. Stock has been ordered for 1921 planting.

In plant breeding work, a very considerable number of seedlings and hybrids have been set in the nursery rows and in permanent fruiting quarters. Fifteen thousand apple seedlings and several hundred peach hybrids were set in nursery rows. Some of these will be transferred in 1921 to permanent fruiting quarters and the remainder a year later. Some four thousand pear, plum and cherry seedlings have been planted out in permanent fruiting quarters; also three thousand gooseberries and about two acres each of strawberries and raspberries.

Several very promising selections as a result of the breeding work have been made in strawberries, raspberries and peaches. The best of the strawberry selections have been distributed to ten or twelve good strawberry growers in the strawberry sections of the Province. One of the best peach selections also has been propagated for distribution and nursery stock will be sent out in the spring of 1921. This peach is very hardy in bud and in wood and an early and prolific bearer.

Considerable progress has been made with the greenhouse cucumber and tomato breeding. The results of the cucumber breeding work have been particularly gratifying. Preparations are being made to distribute for further trials seed of the new hybrid cucumber this winter for the spring crop.

It has been found necessary to do a very considerable amount of repairing and painting to various of the Experiment Station buildings. Extensive repairs have been made to the boarding house. The Administration Building was given a much needed inside redecoration. The Director's residence, Administration Building, boarding house, cold storage and garage were repainted. Several buildings yet remain to be repainted and these will be proceeded with as time permits during the coming season. At the present time, a new double cottage for laborers is under construction and will probably be ready for occupation in the spring.

Provincial Apiarist

The season of 1920 was an exceedingly peculiar one from the beekeepers' viewpoint. The spring promised to open very early, but the fine weather early in March was followed by a long cold wet spell which did much damage and caused a very heavy spring loss in colonies. The fruit bloom and dandelion period was generally fair and gave the living colonies an opportunity to become stronger. In normal years a good deal of honey is stored from the white and alsike clover in June, but this year very little surplus clover honey was stored until July.

A severe winter loss, as occurred last winter, and followed by a backward spring always means that American foulbrood spreads much more rapidly than in a normal season. Many colonies died outright and the majority of those living were weaker than usual. These conditions are ideal for robbing and in this way American foulbrood becomes a real menace to the beekeeping industry. The winter and spring loss this year was fully 50%.

The unseasonable weather made inspection work very unsatisfactory until July, whereas in normal seasons June is an ideal month for apiary inspection.

The Department has found the same difficulty this past season, as in other years, of being able to secure sufficient reliable men to act as apiary inspectors.

Apiary inspection work, to be entirely satisfactory and to yield results, must be conducted by experienced beekeepers, who possess a great deal of tact and yet firmness in seeing that the diseased colonies are treated at the right time and in the right way.

In the past, few second calls have been possible, but this past season an effort was made to re-visit those apiaries where disease was found on the first inspection.

Many beekeepers, with a few colonies, have not sufficient knowledge of the habits of the honey bee and American foulbrood to be able to treat the colonies thoroughly. In many cases, where these beekeepers have omitted some important part of the treatment or have allowed robbing to take place, or re-infection from diseased material and the result has been that American foulbrood has been spread and increased rather than controlled.

Until the County Associations themselves take more interest in the control of American foulbrood and aid those beekeepers with less experience, where American foulbrood is present, it is almost impossible for the Department to control, let alone eradicate American foulbrood.

Report of the Provincial Apiarist

Lambton County Beekeepers' Association are going to make an effort to rid the Country of American foulbrood next season and to this end they are raising a fund so that they can be sure of having an inspector in the County all season. This fund together with the aid of the Department should help materially. The money raised by the Lambton County Beekeepers' Association is entirely secondary to the interest they are arousing among the beekeepers themselves. Where a County Beekeepers' Association developes a real interest in American foulbrood and will co-operate with the Department and the beekeepers of the County, then there will be some hope of decreasing American foulbrood.

The co-operation to eradicate American foulbrood should be a prominent plank in the platform of all County Beekeepers' Associations.

In endeavoring to eradicate European foulbrood the use of Italian queens is essential, but unfortunately not nearly sufficient suitable queens are available. Almost all have to be imported from across the line and the association ordered 2,000 for members during the season but were able to secure only 1,200. This greatly limits the effectiveness of the fight against this disease.

As to the inspection work 398 apiaries were visited and disease found in 160 of them. The colonies inspected numbered 4,973 and American foulbrood was found in 719 and European in 534.

Northern Ontario Plant Breeding Station

In the Spring a generous supply of hardy Russian seedling apples, native plums, bush and cane fruits, strawberries, P.B.S. vegetable seeds, and perennial flowers were distributed to home-makers and experimenters throughout the Northern parts of the Province.

Enquiries from many parts of Northern Ontario were answered, as well as communications from the Prairie Provinces and from four of the Northern States.

Returned soldiers taking up land have been rendered assistance in the form of fruit nursery stock and cultural instructions.

Plans and planting material were sent to a large rural public property.

A number of lectures were given at city and county meetings, and judging was done at three flower and agricultural fairs.

A circular has been prepared on Fruit Culture in Northern Ontario.

Plant breeding and selection work in vegetable seed growing is progressing. Vegetable seed from other Canadian and Northern States experiment stations were grown for comparison in point of season, vigor and adaptability. The variety testing of vegetables and the special cultural experiments with Irish Cobbler potatoes are being continued. P.B.S. productions in spinach, peas, and potatoes, are gaining favorable comment.

Some breeding work has been done in apples, plums, and cherries, and some distinctive strains isolated from among the crossbred raspberries and strawberries which have been produced at this station with the specific purpose of deriving hardier varieties consistent with other desirable characteristics. In the orchard, a number of trees bore fruit for the first time. Several new types of good native plums and one excellent native red cherry were found in the wilds. Some of the seedling sand cherries are bearing good quality fruit.

Propagation work was done with plums, cherries, and ornamental stock. Additions were made to the plantings in orchard, nursery, and ornamental grounds.

Exhibits of an instructional nature were staged at the Fort William Flower Show and at the West Algoma Fair.

Visitors in ever-growing numbers visit the station. These include local citizens and tourists from many regions. In a new territory people require proof for the soil and climate. Demonstration in the way of plantations is the one convincing argument, and this experiment station is showing, in part, the virtues of the wide areas of Northern Ontario.

AGRICULTURAL REPRESENTATIVES

The Agricultural Representatives work is becoming firmly established as an important factor in the advancement of Agriculture and the welfare of the rural communities throughout the Province. It is very gratifying to note the interest and support which the Agricultural Representatives have received not only from individual farmers but from all agricultural and community organizations as well. This co-operation is becoming greater each year and as a result during 1920, the Agricultural Representatives extended their work with more satisfactory results than in any previous year.

There were no new offices opened during the year and the number of Representatives in the Province remains at forty-eight. The Representatives also carried on their work during the year without assistance, except in a few of the larger counties, and during such rush periods as those covered by the School Fairs and Winter Courses in Agriculture. The assistants supplied for School Fairs and Courses in Agriculture divided their time equally between two adjoining counties.

For purposes of administration the Agricultural Representative work is now under a branch of the Department known as the Agricultural Representative Branch with a director and assistant director in charge. During the year a number of changes and transfers have been made in the service and the offices in three counties were moved to more central locations, namely from Whitby to Uxbridge in Ontario County; from Burlington to Milton in Halton County and from Collingwood to Barrie in Simcoe County.

Some idea of the extent of the correspondence and office work and the use made of the Agricultural Representative's office by the farmers may be gained from the following summarized statement:—

County.	No. of letters received	No. of letters written	No. of circular letters mailed.	No. of incoming telephone calls.	No. of visitors at office	No. of meetings held in office.	No. of bulletins and reports distributed.	No. of miles travelled by auto
Algoma	1,932	1,137	1,520	2,109	1.435	16	520	9,500
Brant	1,038	1,012	2,526	628	857	108	....	10,000
Bruce	3,200	3,592	5,318	2,000	1,257	31	250	13,000
Carleton	1,050	1,230	2,900	1,500	800	50	700	8,000
Dufferin	4,500	3,000	4,000	2,000	4,000	20	500	9,000
Dundas	1,480	1,195	4,840	1,232	1,260	61	130	9,000
Durham	2,400	3,025	4,374	295	950	100	435	15,000
Elgin	2,300	2,500	3,900	2,600	1,850	28	400	10,150
Essex	1,820	2,360	6,000	1,500	2,000	34	500	13,000
Frontenac	2,059	560	7,118	900	1,272	84	550	7,279
Grenville	2,000	2,000	3,000	1,800	1,200	....	400	8,500
Glengarry	1,650	2,250	3,500	381	2,478	48	....	4,613
Grey	1,633	1,511	2,131	223	395	27	277	....
Halton	2,191	3,108	....	....	810	....	300	18,000
Hastings	1,026	825	1,890	384	1,231	92	190	6,025
Huron	1,077	1,086	2,194	300	400	26	500	9,600
Kenora	1,350	1,800	300	....	200	....	500	3,000
Kent	1,300	1,400	1,800	2,000	1,500	10	200	12,000
Lambton	1,526	1,966	2,217	996	1,332	56	200	15,000
Lanark	1,390	988	1,153	632	1,231	85	142	11,000
Leeds	3,800	3,600	2,500	4,000	1,500	50	1,000	6,000
Lennox and Addington	1,778	1,295	1,500	1,500	1,900	19	450	8,260
Lincoln	2,621	3,456	3,760	1,280	1,400	140	600	11,000
Manitoulin	798	904	500	1,495	4,105	15	100	10,200
Middlesex	1,476	2,071	3,195	2,344	1,945	47	1,477	16,420
Muskoka	....	1,875	2,500	....	....	....	600	4,500
Norfolk	2,684	2,212	4,140	1,901	2,209	94	1,643	8,997
Northumberland	520	679	600	....	....	....	....	6,492
Ontario	1,800	1,250	5,500	1,200	700	35	500	14,500
Oxford	1,980	2,076	1,296	462	2,180	48	58	....
Peel	2,500	2,700	8,000	5,000	3,000	25	4,000	7,000
Peterborough	1,095	1,100	3,000	600	325	95	45	8,000
Prince Edward	1,166	1,170	1,489	2,450	2,150	34	1,700	7,200
Prescott and Russell	595	466	1,900	300	200	....	....	6,890
Rainy River	1,277	3,093	2,105	3,773	2,798	23	565	7,500
Renfrew	1,821	1,947	2,429	621	1,026	33	285	4,740
Simcoe	2,500	3,500	2,500	500	1,500	40	500	10,000
Sudbury	1,529	765	4,000	804	919	5	262	7,200
Temiskaming	2,464	2,400	1,575	....	1,952	....	87	....
Thunder Bay:								
Port Arthur	864	553	850	1,000	1,465	17	837	4,458
Fort William	741	515	450	1,001	824	52	372	5,775
Victoria	1,500	1,300	2,300	....	1,275	57	....	5,830
Waterloo	1,602	1,292	2,716	....	1,581	....	....	12,240
Welland	2,200	1,460	1,900	1,700	2,100	30	450	8,000
Wellington	1,041	1,000	900	750	749	30	360	9,000
Wentworth	2,100	3,300	1,500	325	6,000	110	6,000	12,000
York	2,100	1,820	8,797	1,000	1,800	42	....	10,000
Total	81,474	84,344	132,583	55,486	72,061	1,830	28,594	393,869
Average	1,771	1,792	2,882	1,387	1,601	42	714	8,952

Meetings Addressed by Agricultural Representatives

The Representatives are called upon quite frequently to address meetings of various kinds all over their respective counties.

The following meetings addressed during the year by the Representative from Peel County are quite typical of those in other counties and give some idea of the nature of the meetings, subjects under discussion and the attendance:

Date.	Place.	Nature.	Subject.	Attendance.
Nov. 3	Bolton	Victory Loan	Moving pictures	175
“ 4	Cheltenham	Organization	Short Course in Agriculture and Domestic Science	25
“ 5	Streetsville	Victory Loan	Motion pictures	50
“ 8	Office	Board of Agriculture	Work for year	8
“ 10	Cheltenham	Community	Short Course in Agriculture and Domestic Science	120
“ 18	Ebenezer	Community	School Nurse	50
“ 18	Streetsville	Junior Women's Institute and Junior Farmers' Improvement Association	Programme for winter	20
“ 19	Brampton	County Council	School Nurse	25
“ 19	Ebenezer	Junior Farmers' Improvement Association and Junior Women's Institute	European Agriculture	42
“ 28	Toronto	Ontario Milk and Cream Producers' Association	Milk Price	150
Dec. 19	S. S. No. 5 Ching.	Public School	Unveiling Honor Roll	50
Jan. 12	Snelgrove	Chinguacousy Council	Agriculture and Domestic Science Short Course	5
“ 12	Cheltenham	Farmers' Club	Agriculture and Domestic Science Short Course	30
“ 19	Claude	Young People's Society	Rambles in British Isles	50
Feb. 6	Toronto	Executive, Ontario Milk and Cream Producers' Association	Discussion on policy	15
“ 6	Meadowvale	Farmer's Club	Motion Pictures	50
“ 7	Brampton	Peel County Milk and Cream Producers' Association	Annual meeting	200
“ 7	Office	Peel County Milk and Cream Producers' Association	Executive meeting	8
“ 10	Malton	Short Course	Preparation for Short Course	10
“ 11	Caledon East	S. S. No. 14 A	School Fairs	60
“ 11	Caledon East	S. S. No. 11	Nature Study	20
“ 11	“ “	S. S. No. 10	Agriculture	17
“ 13	Alton	Board of Agriculture	Discussion P. M	10
			Heavy Horses, Evening	25
		Board of Agriculture	Discussion	10
		S. S. No. 15	Live Stock	75
“ 20	Caledon	Potato Institute	Grading, afternoon	30
		Demonstration	Chairman, evening	45
“ 21	Palgrave	Potato Institute Demonstration	Discussion	20
		Demonstration	Chairman	22
“ 25	Huttonville	Board of Agriculture	Discussion	10
		Board of Agriculture	The Rural Problem	50
Mar. 3	Malton	Short Course	In charge stock judging	50
“ 4	“	“ “	“ “ “	60
“ 11	Aurora	Judging Competition	Junior Farmers' Endeavour	20
“ 19	Streetsville	Junior Women's Institute play	Chairman	300
“ 23	Brampton	County Council	School Nurse	17
“ 24	Cheltenham	Junior Farmers' Improvement Association	Acre Profit Competition	15

Meetings Addressed by Agricultural Representatives—Continued

Mar. 31...	Campbell's Cross.	Junior Farmers' Improvement Association	Stock Judging	15
Apr. 1...	Snelgrove	Women's Institute	Bacteriology	25
" 5...	Toronto	Milk and Cream Producers' Association	Discussion	100
" 13...	Mount Pleasant	Young People's Society	Motion Pictures	50
" 15...	Caledon	Agricultural Society	Joint Fairs	15
" 21...	Cheltenham	Junior Farmers' Improvement Association	Year's work	15
" 26...	Brampton	Guild	Motion Pictures	40
" 28...	Caledon	Survey	Chair	22
" 29...	Brampton	Young Mens' Club	Motion Pictures	40
" 29...	"	Farmers' Club	Cooperation	40
May 5 ...	Palgrave	Junior Farmers' Improvement Association	County Federation	20
" 8...	Cooksville	School Fair, chairmen	School Fairs	18
" 8...	Ebenezer	School Fair, chairmen	" "	12
" 14...	Brampton	Junior Farmers' Improvement Association	County organization	75
" 15...	Brampton	School Fair, chairmen	School Fairs	20
" 24...	Elmbank	Community	Motion Pictures	250
" 29...	Brampton	Fall Fair Board	Revision of List	10
June 15...	Office	Junior Farmers' Improvement Association	Stock Judging	6
" 16...	Brampton	County Council	School Fairs	17
" 18...	Erin	Junior Farmers' and Junior Women's Institute picnic	Sports	300
July 3...	Caledon East	Township Council	Live Stock Census	5
" 3...	Ebenezer	" "	" "	5
" 12...	Snelgrove	" "	" "	6
" 12...	Clarkson	"Y" Boys' Camp	Agriculture	50
" 13...	"	" "	Demonstration, Weeds and stock	50
" 29...	Office	Junior Farmers' Improvement Association	Plans of work	10
" 31...	Newmarket	Community meeting	Competitions	5
Sept. 7...	"	" "	Advisory Board	6
Oct. 20...	Snelgrove	Township Council	Better Sire Campaign	6
" 22...	Toronto	Ontario Milk Producers' Association	Winter Prices	15
" 25...	Uxbridge	Community	Competitions	5
" 23...	Elmbank	Community group	Motion pictures	35

Total meetings	66
Total attendance	3,259

School Fairs

The School Fair work was extended during 1920, 401 School Fairs were held as compared with 357 in 1919. 96,351 pupils representing 3,507 schools had an opportunity of competing at these Fairs, and the Agricultural Representatives distributed for School Fair purposes the following quantities of seeds:—

Potatoes	1,336	bags.
Grain—Oats, Barley and wheat	285	bus.
Peas and corn	22,685	pkgs.
Vegetables—Beets, carrots, onions and parsnips	34,045	"
Roots—Mangels and turnips	11,960	"
Flowers—Asters, phlox, sweet peas and cosmos	24,920	"

The instructions supplied to each pupil with the seeds give detailed directions for laying out the plot, planting and caring for the resultant crop. These instructions are usually followed quite closely by the pupils, but occasionally home circumstances may be such as to prevent this, with the result that the child's School Fair material is planted under ordinary field conditions along with the parents' main crop of the same kind, a condition which does not give the boy or girl the full training to be derived from personally laying out his or her plot, planting and caring for the crop. Systematic inspection of all plots during the growing season would in most cases correct this condition, but plot inspection has not been generally possible since Agricultural Representatives are not furnished with sufficient assistance to permit them undertaking this work which takes a great deal of time. The value of plot inspection is, however, recognized not only from the standpoint of assisting the pupils taking part in School Fair work, but it also tends to bring the Agricultural office more closely in touch with the farmers and rural problems.

Twelve thousand five hundred and eighty-nine dozens of Barred Plymouth Rock eggs of a bred-to-lay strain were distributed last year for School Fair purposes. This was approximately 3.5 settings for each of the 3,570 schools taking part in school fair work. The great majority of these eggs were supplied by the poultry breeding stations maintained in the various counties.

School Fair Organization

The local organization for school fair purposes, with modifications to meet varying local conditions is as follows:—The pupils in each school in a school fair district, through their teacher, are requested to elect three representatives to the School Fair Board. This election is usually carried on by ballot and the pupil securing the highest number of votes acts as chairman of the Board for his or her school. These school chairmen are brought together at a central point where they conduct a business meeting, dealing with School Fair matters, and also elect their School Fair Association officers consisting of the following,—President, Vice-president, Treasurer and Secretary. The officers so elected take an active part in the direction and management of their School Fair with the Agricultural Representative acting as manager or general director. The educational training and experience gained by the school pupils taking an active part in the administration of School Fairs is of inestimable value, although they may be performing only duties of minor importance, previously arranged or assigned to them. The School Fair officers are, however, usually called upon to take a very active part in the School Fair management and perform such duties as arranging for and collecting grants for the School Fair prize list: directing the distribution of seeds and supplies to their respective schools: directing the placing of exhibits on the day of the fair: assisting with paying the prize money and assisting judges.

In connection with finances and other School Fair work some of the Agricultural Representatives have built up or brought into use existing organizations of adults, which have given very material assistance in successfully conducting School Fairs as the following quotation from the report of the Representative in Lambton County will indicate:—

"In connection with the School Fairs held at Sarnia Township Hall, Rutherford, Cairo, Petrolia and Oil Springs, I have organized a Trustees' Association. One of their duties is to assist in the conducting of the School Fair. The Association looks after the financing of the School Fair, paying the prize money and collecting prizes. I find these organizations take a deep interest in the School Fair work and create a deeper interest, or more community interest, in the School Fair. In connection with the School Fairs held at Jericho, Arkona and Warwich Village, the Women's Institute takes the same interest and gives the same support as the Trustees' Associations do in the School Fairs held at other points in the county."

Quality of Exhibits

The Agricultural Representatives report that the quality of exhibits last year in the great majority of cases, surpasses that of any previous year. This may be due partly to the generally favorable growing season, but more particularly to the greater care and attention on the part of the pupils in preparing their exhibits, resulting from experience gained at previous school fairs. The tendency has always been towards an improvement in the quality of exhibits as the School Fairs become established due, no doubt, to the fact that the pupils are anxious to win and if unsuccessful, try the next year to approach more closely the uniformity and quality of the exhibits, and to the fact that the judges at most fairs are called upon to give the pupils a short talk on the quality of their exhibits and make suggestions for improving the same.

The Agricultural Representatives employ various methods in endeavoring to train the pupils in the selection of grain, roots, vegetables, etc., on a type and quality basis, but the most common method is to have the judges discuss the various classes after the judging has been completed. Others have the teachers and school fair officers in the tent or hall while the awards are being made. The judge then explains the various awards as they are made. In this way the teachers and school directors are in a position to assist the pupils of their respective schools in improving the uniformity, type and quality of their exhibits. The Representative for Wellington County gives the following information in this connection:—

"We invited all the directors and teachers to come into the tent, while the judging was going on, and we can assure you that this will be carried out in the future. Nothing has helped our fairs as much as this plan. In this way, all the teachers and directors get a much better idea of how the judging is done."

Special Features

The distribution of school fair seeds and eggs has been facilitated in some counties by organizing distribution days. This is accomplished by arranging to have a representative from each school in a district meet at a central point on a certain day to receive the supplies for their respective schools. The school representative returns and distributes the seeds and eggs to the pupils of the school he represents. This method where adopted has greatly reduced the cost of distributing school fair material.

Judging competitions for teams from schools taking part in school fairs are becoming important features of the work and tend to stimulate an interest in live stock amongst the boys. The winning teams, or winning boys, where the competition is for individual competitors, are in some cases brought together at a later date to compete for the county championship, at which event substantial prizes are offered. In Oxford County, the school teams are coached by a Junior Farmer or other competent party and prizes offered for the coach of winning teams. Three coaches of winning teams had their expenses paid to the International Live Stock Exposition in Chicago last year.

Public speaking competitions form one of the important features at most school fairs and the value of training the boys and girls in public speaking is being more generally recognized. The following speeches delivered at school fairs in Elgin and York Counties are typical:—

Donald Hassard, Willowdale, 10 *years of age:*—

Who Won the War?

Mr. Chairman, Ladies and Gentlemen:—

Many times the question has been asked in reference to the Great War, "Who Won the War?"

In August, 1914, the whole world was shocked by the news that Germany's immense army was marching in mass formation through Belgium, leaving desolation in its path,—murdered women and children and fire consumed farm buildings and homes of innoccent people.

Then the call came to Britain to protect the weak against the big bully of Europe and, as afterwards proved to be the case, to fight for her very existence.

France was in danger and asked England to provide an army to assist in repelling the fierce invader. England, as she always has done, fulfilled her contract, and sent to France, in an incredibly short space of time, what the then Kaiser termed "Kitchener's Contemptible Army".

This small Army filled in the breach and held the line at tremendous sacrifice. This was but the beginning of a British Expeditionary Force, which grew into millions. But this great force did not win the war.

Canada was not slow to answer the call and sent of her best and surprised Germany by her loyalty and her readiness to fight a fight that was not her own, but a fight for humanity. Canada's share was not a small one, but Canada's Expeditionary Force did not win the war.

The other nations in the Great British Empire contributed large Expeditionary Forces, but they did not win the war.

The Doughboys of the United States were needed in 1914, but it took three years for them to rise. When the United States did get into the war, they responded to the call with American enthusiasm and efficiency. They soon put an immense Expeditionary Force over in France, well trained and fully equipped. This American army did help to bring the war to an end earlier than would have been the case otherwise, but it did not win the war.

There was a force in Great Britain and Canada and the United States, a force of men and women, and boys and girls, they made munitions and supplies and comforts and necessities, that were sent forward. They sacrificed and worked and prayed; they represented a tremendous force, but it did not win the war.

There was yet another force perhaps more silent and less spectacular, that was engaged in the war. This force made it possible for men and munitions and supplies to be transported overseas. This force cleared the seas of the enemy's fleet, and bottled it up where it could do little damage. This force was ever alert and watchful and ready to meet at any hour of the day or night, the cowardly fleet of the enemy that dared not show itself in the open. This was the force that won the Great War —The British Navy.

Harold Lowry, Rodney, 11 *years of age.*

Is the School Fair Worth While?

The chief object of our school fair is to thoroughly educate the child of to-day. It is to broaden the mind, to awaken thought and to enable the child to find out for himself the why and wherefore of things that were to him unimportant and common-place before.

Opinions, as to what really is Education differ very much. If a person could write intelligibly, read the daily papers fairly well and knew all the rules of arithmetic, he was considered well educated, a few years ago. Now, he is thought very ignorant, indeed if he has not at least a High School Course.

But there is a higher education not found in books, which until lately was considered common or unnecessary. We are just beginning to realize how one-sided and unsatisfactory our learning has been. Boys and girls have passed all grades in high school and gone out into the world ignorant of the most common, yet most essential things. Young men, and maidens also, have graduated from our universities, yet could not tell how a stalk of corn or the vegetables they ate, were produced.

The older people planned and plotted to raise better grains, flowers and vegetables to exhibit at the Fall Fairs. They raised better stock and cared more for their animals in order to obtain prizes at these Fairs. This rivalry has done much towards improving conditions in the country. Now, if the older people obtained so much benefit from a Fair, why not the younger? The child of to-day is the man or woman of to-morrow and. as the mind of the child is more plastic, more easily molded than one of mature age, how vastly important, how absolutely necessary that the very best means are used, the highest ideals held before him. For the benefit of our country, for the pupil's own welfare, we should consider every fair means to thoroughly educate the child.

It is impossible in so short a time to tell all the things that make a school fair worth while, but I hope to tell you a few.

In the Spring, the teachers announce that seeds are ready for distribution to those who wish to compete at the Fair, nearly every one wishes to grow something. We have seen our parents gardening, but it only looked like work. But, now we are going to have a garden of our very own. Maybe we take corn, some one else potatoes, carrots, some other vegetable seeds or flower seed or perhaps eggs.

Think of the healthful exercise preparing the ground, out in the open air. Think of the clean pure thought in the mind. What was dirt before, is now some sort of soil, we wonder at the difference. Education begins at once.

How eagerly we watch from day to day for the first green shoot to appear. What a lesson in patience! We learn to distinguish weeds and strive to get rid of them. This is where perseverance is needed. We see now the value of cultivation, rain and heat. Did any one ever realize that it took so much time, labor, rain, heat, dew and sunshine to produce an ear of corn or a hill of potatoes and how perfect each is. Isn't it worth while to learn even this much?

In the spring we go into the woods and gather the spring beauties. We admire them it is true, but, now, we are really helping to grow flowers. We never knew how beautifully they were painted nor how well the colors blended. How grand and unfathomable the glories of the flowers! Only the hand of the Great Master Artist could have painted such a picture. How soothing and refreshing their influence! At once there awakens the taste for the pure and noble, the humble and modest. Each flower teaches us some lesson. We see new beauties everywhere. We admire the gorgeous tints of autumn and marvel at the grandeur about us. Nature points to Nature's God and the mind reaches out after more knowledge. Surely this is worth while.

In sewing and cooking, which is woman's true spere, the little women or girls excel. The exhibits shown here are equal if not superior to those found at the Township Fair. The girls are becoming more interested and more useful at home and this is most certainly worth while.

The exhibition of stock is to boys what sewing is to the girls. It gives them a greater incentive to care for and love the young stock and very proud is the boy whose calf or colt carries home a prize.

This too is of much account. Then there is the poultry. The School Fair is a great benefit in this department. The best eggs are provided and from the chickens hatched, a good start can be made in a very profitable and useful industry. We know that many a girl as well as boy has proved poultry raising very profitable.

Thus the lessons of patience, perseverance, promptness and thoroughness are taught. The healthful exercise, rest and pleasure after school work. The development of the mind, the delving and finding out for one's self, all these are but a few of the things that go to make a school fair worth while. All credit to those who planned and worked to make our School Fair a success.

Plot Inspection

The inspection of School Fair plots was not general last year as previously stated, but was carried on in a few counties by local parties, teachers, trustees or organizations, such as the Women's Institute. The Agricultural Representative in Kent County was able to have the work undertaken by the various township councils. The township council in each case appointed and paid the inspector undertaking the work.

Joint Fairs

Rural School Fairs and Agricultural Society Fairs have been held together in one or two instances in the past, but last year joint fairs were held in the counties of Middlesex, Norfolk, Welland, Haldimand, Grey, Peel. Lanark, Carleton, Renfrew, Bruce and in the districts of Algoma, Thunder Bay and Muskoka. under the plan agreed upon by the Agricultural Representative and Agricultural Societies Branches of the Department of Agriculture, which is as follows:--

1. *Prize List.*

That the list of classes for the Rural School Fair, prepared by the Agricultural Representative and the Rural School Fair Association, be included in the regular prize list of the Agricultural Society.

That one copy of this prize list be distributed to each pupil or one copy to each family or household in the Rural School Fair Association.

That the prize list be issued not later than June 1st. Where it is impossible to issue the regular Agricultural Society Prize List by this date the Society should issue a separate School Fair prize list for early distribution.

2. *Finances.*

That the Agricultural Society supply half the prize money, such sum not to exceed $75.00, for these classes and that this sum be paid in cash to the Manager or Secretary of the Rural School Fair Association prior to the Fair.

3. *Accommodation.*

That the Agricultural Society supply suitable building or tent accommodation for displaying the pupils' exhibits, together with tables and poultry coops and have same in readiness the day previous to the Fair. Where this equipment is supplied by the Department of Agriculture, the Agricultural Society must pay transportation and cartage charges, and furnish help to erect the tents.

That suitable field accommodation, properly enclosed, be definitely assigned to the Rural School Fair for the purpose of holding sports, parades, judging of live stock.

That a programme for the day be decided upon by Agricultural Society officials and the Agricultural Representative to avoid clashing of events.

4. *Admission.*

That all the pupils and teachers in the Schools taking part in the Rural School Fair be given free admission to the Fair.

5. *Judges.*

That the Agricultural Society supply judges for exhibits such as poultry, live stock, vegetables, grains, etc., satisfactory to the Department.

6. *Protection* (Constables).

That the Agricultural Society supply protection for Rural School Fair exhibits.

How the plan worked out may be gained from extracts from Agricultural Representatives' reports which follow:—

"One Fair was held in co-operation with the Agricultural Society at Tiverton. This was brought about by the fact that our date and theirs was only five days apart. After a conference with them, we decided to try the experiment for this year as it was the first school fair ever held in that district. Their fall fair is only a one day one and is very small. A large rink was utilized, the school fair occupying the south half and the fall fair the remainder. The school fair was very satisfactory and the only difference that could be noticed was, that the children did not have as full a programme of sports as they otherwise would have had. Our programme was run the same as we always conduct it. We utilized one part of the ground while the fall fair utilized the other. I believe the attendance was larger than they ordinarily have and the only difference that we could notice was that while the stock judging was going on a large percentage of the men were around the ring, while the remainder and practically all the women were watching the school children. Here we had one of our very best School Parades, as every school in the district was in it, all the children marched to the grounds as a body, led by two pipers who were engaged by the Agricultural Society for that purpose. They were all granted free admission and no financial benefit went to the society from having the children present. No decision has been arrived at as yet regarding the future of this Fair, but the only objection I can see is that the social spirit is not as well developed at a combined fair as at a school fair. This was the objection expressed by a number of interested parties who were observing this fair very closely.

"In one instance only was the School Fair held in conjunction with the Agricultural Society Fair and this in Ramsay Township. The joint fair was held at Almonte, and while it cannot be considered that the school fair gained much except financially, it must be said that the school fair added considerably to the Agricultural Society Fair. While it is said that the two fairs were held jointly, it cannot be held as an accurate statement. Ramsay Agricultural Society Fair is a three-day exhibition with little or nothing doing on the first day, and it was on the first day that the School Fair was held. The school children were given the use of the main building, and were asked to leave their exhibits to compete in the larger fair, but they were at perfect liberty to take their exhibits home the first night if they so desired. As there were no stock exhibited by the agricultural society on the first day, the children had full use of all stable room for their stock, and of the show ring for the running off of their sports.

"The Agricultural Society paid $45 towards the School Fair prize list and in return, many of the school children paid membership fee in the agricultural society and exhibited along with the older people. No pupil paid any fee except those who made entry in the agricultural society prize list. The experiment was entirely satisfactory to those in charge of the School Fair, and if similar arrangements can be made another year, it will be most satisfactory to those in charge of school fair work.

"At Beachburg, we held a Fair in co-operation with the North Renfrew Agricultural Society I heard some complaints from parents, but generally speaking, I believe the idea was satisfactory. Several told me that it was a great saving of time, in that they did not have to spend another day attending the School Fair, and that if they had to miss one, they would rather attend the School Fair. A few adults objected to paying 35c. admission. I distributed tickets to all the schools, so that pupils were admitted free. We held our Fair on the second day of the Beachburg Fair, but at the request of the Directors of the Fall Fair, held our exhibits for two days. This was not altogether satisfactory, as a good many of the pupils found it difficult to return to get their exhibits on the last day. This difficulty was overcome to some extent by having one person from the community take all the exhibits from that school to the school house, where the pupils could obtain same.

"Another year, I would insist that our School Fair exhibits be held for only one day. We ran off our usual line of sports and found no difficulty in holding the crowd.

"Our exhibits at the Beachburg Fair compared very favorably with those in the large hall. In fact the Domestic Science and Flowers were a much larger exhibit.

"The directors seemed to be quite pleased with the idea, and I would be glad to have the Fair held the same way next year. It certainly increased their gate receipts."

"Early this spring, I received a request from the Secretary of the Thorold Agricultural Society stating that if it could be arranged the Society would like to have the Thorold Township School Fair held in conjunction with the Agricultural Society's Fall Fair. I discussed the matter with several of the Trustees, and while they were not certain that it would be a successful arrangement, they thought that it would do no harm to experiment for one year. The Agricultural Society agreed to pay fifty per cent. of the prize-list, to supply all the necessary accommodation and to admit the teachers and children free. The plan worked out very satisfactorily until the horse races and other attractions started, from then on it was rather difficult to carry out the intended programme as a number of the children and parents as well were drawn away by these outside attractions.

"The Township people fulfilled their obligations willingly and were delighted with the Fair which undoubtedly was much improved by the addition. A comparison of the entries made in contests at the 1919 and 1920 School Fairs will give an idea of how the junior's show suffered.

	Entries	
	1919	1920
Public Speaking	3	1
Boy's Riding	2	0
Girl's Riding	not listed	0
School Parade & Drill	3	0

The sports also were unorganized in comparison. The boys and girls in some cases were frightened of so many people, particularly in contests like public speaking. Rather, they were afraid of the thought of speaking at Caledon Fall Fair which had always seemed such a monstrous day. Again there were so many counter attractions that it was difficult to locate them when required, and impossible to retain them after concentration. The teacher, too, had always considered this a holiday—a day on which to meet aunts, cousins and others. They did not feel like sacrificing it. If the school drill were entered 'their pupils might disgrace them before all of these people.' As a matter of fact, the crowd was not so much larger than at a regular School Fair, but their idea of it was. It was not the children's own show, interest was lacking and results unattained. This experience more firmly convinces that the soul of the School Fair is lost when such an affiliation is affected."

The joint Rural School and Agricultural Society Fall Fairs worked out quite satisfactorily in the majority of cases. In almost every case, the gate receipts of the Agricultural Society were increased, but the variety of attractions had a tendency to take the attention of the pupils away from the School Fair to such an extent that difficulty was encountered in completing and properly conducting the programme and various contests outside of the regular exhibits.

District Championship School Fairs

District Championship School Fairs were held during 1920 in the following counties:—Frontenac, Halton, Norfolk, Oxford, Wentworth and Manitoulin and Rainy River Districts. At the championship fair, the first, second and third prize winners and in some cases all of the winners at the various school fairs in the county or district were allowed to compete. The total number of entries at the various championship fairs was as follows:—Wentworth, 600; Oxford, 575; Halton, 376; Norfolk, 250: Manitoulin,141 and Rainy River, 118. The Agricultural Society, in conjunction with which the Championship Fairs were held, financed the whole prize list, with the exception of Halton where the Agricultural Society supplied one half of the prize money and Wentworth where the Championship Fair was held independently, and the prize list in the latter case was financed by a grant from the County Council. The Agricultural Representatives holding District Championship School Fairs report that they were very successful, and that practically all schools connected with school fair movement in their respective counties were represented.

The adoption of Championship School Fairs in all the counties throughout the province is handicapped, by the difficulties encountered in having all school fairs run off before the Agricultural Society Fairs. This is impossible in a great many instances as Agricultural Society Fairs are held early in September and the school fairs, as a rule, are not over until near the end of September or first of October. The other outstanding difficulty is that of transportation for eligible pupils from outlying points, to the Championship Fair. Wentworth County Championship School Fair has been held independently but the Agricultural Representative reports that it would undoubtedly be more successful if held in conjunction with an Agicultural Society Fall Fair.

Poultry Breeding Stations

Poultry Breeding Stations established in each county supplied the great majority of the eggs required for hatching purposes by Schools Fairs. A limited number of settings were, however, secured from the Poultry Department of the Ontario Agricultural College, Guelph. A number of the Poultry Breeding Stations also sold eggs for hatching to farmers in the district and a marked improvement is to be seen in the quality of the farm poultry flocks where these eggs have been used. Poultry Breeding Stations, it should be understood, are owned and operated by farmers and poultry keepers. The Department merely supervises the quality of stock and methods and agrees to use certain number of eggs for school fair purposes.

The flocks at the Poultry Breeding Stations are inspected and carefully culled each year to eliminate the non-producers. Cockerels of a high producing bred-to-lay strain are mated with these flocks, with the result that chickens hatched from eggs supplied to boys and girls in the School Fair work are an important factor in increasing the egg production of the average farm flock throughout the province.

The financial statement of a Breeding Station in Frontenac County supplies some interesting information and is given herewith:—

Nov. 1st, 1919 to Oct. 31st, 1920

Breed—Barred Rock.
No. of Birds on hand, Nov. 1st, 1919—42.
No. of Birds including 90 pullets and 11 one-year old hens, Oct. 31, 1920—101.
Chickens hatched—375.
Chickens raised to maturity—189.

EXPENDITURE.		RECEIPTS.	
Cost of feed	$259.60	Eggs sold for hatching	$ 56.00
Straw	11.30	6 Cockerels	10.00
Disinfectant	3.00	Fowl sold 155 lbs. @40c.	62.00
Eggs for hatching	43.80	Dressed chicken	119.97
		Eggs produced 288 doz. @ 50c.	144.00
	$317.70		$391.97
Interest on Investment in Brooders, Incubators, etc. $130.15 @ 6%	7.80	Value in increase of stock, viz, 59 birds @ $2.00	118.00
		Credit balance	$509.97
Depreciation on Brooders, Incubators, etc. $130.15 @ 3%	3.90	Debit balance	329.40
	$329.40	Total credit	$180.57

Records have been kept of a number of Poultry Breeding Stations, the monthly reports of which have been sent direct to the Poultry Department of the Ontario Agricultural College at Guelph. The report of the Poultry Breeding Station owned by Miss Maud Holdsworth, of Port Hope, shows a net profit from her farm flock of approximately $500.00 particulars of which follows:—

Number of hens on hand, January 1st, 1920	103
Total number of eggs gathered	1,249½ dozen
Total number of eggs sold	1,099½ dozen
Totol number of eggs used at home	125½ dozen

RECEIPTS.		EXPENSES.	
Eggs sold	$719.34	Value of feed	$422.05
Eggs used at home	68.75	Sundry expenses	29.91
Fowls sold	73.63		$451.96
Fowls used at home	18.85		
Chickens sold	54.96		
Eggs used for setting	12.75	Net Gain	$496.32
	$948.28		

NOTE.—In September 11 pullets commenced to lay and eggs were recorded with old hens. Seventy-two chicks were sold during the summer and seventy-five pullets on hand. December's flock—seventy-five pullets and twenty-seven hens.

The average egg production from Miss Holdsworth's flock was 160 eggs per bird. The average from all the breeding stations was 125 eggs and the general average of farm flocks is 60 eggs per bird per year.

The following table gives the number of Breeding Stations in each county, also the number of hens and pullets and cockerels. The number of dozens of eggs distributed for School Fair purposes and to farmers is also given.

County.	No. of Poultry Breeding Stations.	No. of hens and pullets	No. of cockerels	No. of dozens of eggs for School Fair distribution.	No. of dozens eggs purchased by farmers.
Algoma	5	202	10	194	....
Brant	3	182	12	120	30
Bruce	2	220	10	337	49
Carleton	2	210	7	120	40
Dufferin	3	180	9	252	....
Dundas	4	265	13	327	....
Durham	8	510	21	305	....
Elgin	7	515	32	413	137
Essex	5	375	26	553	213
Frontenac	4	226	15	187	13
Grenville	6	425	15	218	....
Glengarry	3	....	....	....	....
Grey	5	330	18	357	11
Haldimand	....	....	....	....	....
Halton	4	300	....	191	....
Huron	2	200	10	423	....
Kent	4	310	20	440	250
Kenora	5	307	13	126	....
Lambton	4	535	21	429	....
Lanark	3	138	8	159	68
Leeds	13	640	31	200	430
Lincoln	1	50	3	50	15
Manitoulin	7	283	13	150	....
Middlesex	2	156	10	319	200
Muskoka	....	....	....	....	....
Norfolk	5	372	20.	424	125
Northumberland	8	....	....	252	124
Ontario	6	460	19	389	....
Oxford	4	406	25	376	505
Peel	3	215	13	377	81
Peterboro	2	160	9	211	45
Prince Edward	2	90	....	....	....
Prescott and Russell	2	105	6	....	....
Rainy River	4	131	8	125	....
Renfrew	4	127	6	151	....
Simcoe	5	295	13	396	....
Temiskaming	3	170	7	93	....
Port Arthur	5	137	10	132	....
Fort William	1	60	5	56	50
Victoria	5	232	14	308	32
Waterloo	4	410	18	224	....
Welland	3	216	9	223	75
Wellington	2	....	....	....	....
Wentworth	4	217	16	353	215
York	3	220	8	305	41
Total	177	10,582	523	10,411	2,824

Home Garden Contests

During the season of 1920 seventy-five Home Garden Contests were conducted in forty-two Counties, and included approximately 1875 competitors. Each competitor was supplied in the spring of 1920, with sufficient seed to plant a plot 20 x 30 feet and they were also supplied with a plan for laying out the garden as well as instructions for planting and caring for each of the varieties of vegetables included. These Home Garden Contests have been decidedly popular and serve to maintain the interest of the boys and girls in agricultural work after they have outgrown the School Fair work. They have also played an important part in supplying fresh vegetables for home use and encouraging the use of a greater variety of vegetables in the average home. The gardens were judged by the Agricultural Representative during July and August and prizes awarded for the best kept gardens. In most cases prizes were offered at School and Agricultural Society Fairs for exhibits from these Home gardens and excellent exhibits were staged by many of the contestants.

In Carleton County the Boys' Potato Growing Contest established in 1912 and the Girls' Gardening and Canning Competition established in 1916, both of which have been financed by funds provided by the late Mr. R. B. Whyte of Ottawa, have taken the place of the Home Garden Contests. In both of these competitions the competitors are required to keep records and write an essay on their work at the close of the season. The boys are required to keep records of the cost of producing their plot of potatoes and to make an exhibit of one bushel at the County Fair while the girls are required to take notes on their gardens, to can the fresh vegetables and to make an exhibit of fresh and canned vegetables at the County Fair. Excellent results have been accomplished through these two Competitions and especially the latter. The variety and quality of the canned vegetables exhibited by the contestants in Girls' Gardening and Canning Competition have been an outstanding feature.

Home Demonstration Work

The work of the Home Demonstrator in Peel County has become firmly established and has an influence for good in all rural interests which affect women, girls and homes of the County. Practically all phases of the activities of the Agricultural Representative, are strengthened by this Department and the summarized statement which follows, give an idea of the number of people reached directly by the Home Demonstrator during the past year:—

Office calls	500
Phone calls	700
Letters received	359
Letters sent	436
Circular letters sent	1330
Bulletins given out	387
Meetings addressed	66
Attendance	3866
Schools visited	16
Rural homes visited	33
Newspaper articles	24
New organizations formed	1
Half-days in office	283

During the year Special Courses were arranged and held in Home Economics, Sewing and Physical Culture for girls in various parts of the County.

A great many phases of the work are linked up with the sixteen branches of the Women's Institute of which the Home Demonstrator is District Secretary. Special attention was paid to education and better schools, public health, child welfare, dental clinics, and the school nurse and medical inspection projects were fostered.

The Home Demonstrator, in co-operation with the Women's Institutes, was especially active in getting a school nurse appointed to visit the rural schools to promote school health, to inspect sanitary conditions and generally to enlist the cooperation of the teachers, parents and trustees in health matters. The school nurse project was financed by the Women's Institutes and her activities were directed by the Home Demonstrator under the supervision of the Agricultural Representative.

Perhaps no single feature equals the service rendered in connection with the six Junior Institutes which have been organized during the past two years by the Home Demonstrator. With the idea of placing the junior activities on a little broader basis the several branches organized a County Institute called the "Peel Junior Institute," the constitution of which is as follows:

1. The organization shall include all Junior Women's Institutes in the County and shall be known as the Peel Junior Institute.
2. The objects of this organization shall be:—
   (a) To further all aims of present J. W. I. branches and stimulate interests in their activities.
   (b) To arrange County Competitions as Breadmaking, Sewing, Judging and Poultry Contests and Inter-Institute debates.
   (c) To promote all work for the progress of rural life.
   (d) To further social relationships and interchange of thought between various branches and their members.
3. The officers of the organization shall consist of a President, two Vice-presidents, and a Secretary-treasurer elected at the Annual meeting and a committee of Directors composed of Presidents and Secretaries of Branch Junior Institutes in the County.
4. The organization year shall commence on March 1st.
5. Ten members of the organization shall constitute a quorum for the transaction of business. Four members of the executive shall constitute a quorum for the transaction of business.
6. There will be no membership fee. Members of a branch Junior Institute shall be members of the Peel Junior Institute.
7. This constitution may be amended by a majority vote at any regular meeting.

The only activity conducted on a County basis was the Judging Competition which took place at the Brampton Fall Fair—teams of girls from the Ebenezer. Cheltenham and Streetsville Junior Institutes competed in the judging of Cooking and Sewing exhibits at the Fair and did exceedingly good work.

In connection with Child Welfare a special clinic was arranged and held in Caledon Township where exhibits of food and clothing were prepared. A nurse from the Provincial Board of Health was in charge of the clinic room where children under school age were brought in for examination and consultation.

All home and community problems art taken hold of energetically by the Home Demonstrator and with hearty support of the people great progress is bound to be made during the next few years.

Courses in Agriculture

Special four to six weeks' Courses in practical Agriculture conducted by the Agricultural Representatives were held last year in thirty-seven counties and one thousand and twenty-five farmers took advantage of these Courses, or an average enrollment of approximately twenty-seven. These Courses are made as practical as possible and planned to meet the requirements of the districts where the Courses are held, considering the type of farming followed. The Agricultural Representative and an assistant supplied by the Department took up most of the lecture work at these courses and supplemented their lectures with practical demonstrations in live stock judging, milk testing, pruning, candling eggs, judging seeds and the identification of seed impurities.

Special lecturers were arranged for by the Department to attend these Courses and deal with special subjects such as Veterinary Science, Beekeeping, Fruit Growing, Co-operation and Marketing, Farm Management, Plant Diseases and Livestock.

Literary Societies, which are organized by members of the classes, constitute one of the important features. The members of the classes are given an opportunity to take part in debate, deliver addresses and to conduct meetings, a training which is of great value. The members of the class also take charge of the closing exercises, usually a banquet at which prominent farmers, business men and others are guests.

While this phase of the work is told in a brief paragraph, it is really one of the most important of the many Agricultural Representative activities. It is having a far reaching influence on the young men on the farm.

Courses in Domestic Science and Home Nursing

In many cases Courses in Domestic Science and Home Nursing are conducted in conjunction with the Courses in Agriculture and joint lectures are held when subjects of interest to both classes are being discussed. These Courses have been dealt with elsewhere in this report and require no comment here.

Junior Farmers

The Junior Farmers' Improvement Associations organized in the various Counties are made up mostly of young men who have taken a Course in Agriculture conducted by the Agricultural Representative. Last year these associations numbered 88 with a membership of 1926. The Junior Farmers' Improvement Associations are very closely associated with the activities of their respective districts and have accomplished a great deal in improving educational and social conditions.

The activities of the Junior Farmers' Associations consist of holding business and educational meetings from time to time throughout the year, but chiefly during the winter months, and taking part in or directing many of the activities of the district such as debates, garden parties, skating parties, picnics and motor excursions. The Junior Farmers also compete in the various competitions conducted by the Department of Agriculture, and conduct a number of competitions under their own direction and management, such as Live Stock Judging and Plowing Competitions.

In a number of cases County Junior Farmers' Improvement Associations have been organized with representatives from each of the local organizations. These County organizations take charge of such work as concerns the whole County and have been active in organizing and conducting Inter-Association debates, County Judging Competitions, Inter-Association Baseball Leagues, Plowing Competitions, Banquets, Public-speaking Contests and Field Days.

In connection with Judging Competitions conducted by the Junior Farmers' Improvement Association, special prizes were offered in a number of Counties which consisted of a trip to Chicago to the International Live Stock Exposition with all expenses paid. Eleven boys won special prizes of this nature last year and attended the International Show in Chicago in November last.

Ontario Junior Farmers Visit International Live Stock Show

A party of fourteen Junior Farmers from various parts of Ontario in charge of the Assistant Director of Agricultural Representatives, visited Chicago and the

International Live Stock Shows in December. The members of the party with one exception were winners in the Inter-County Judging Competitions at Guelph and Ottawa, local Judging Competitions or winning coaches of School Fair Judging teams. The prizes in each case consisted of expenses for the trip to Chicago.

The Prize Winners, the Competitions in which they won their Prizes and the donors, were as follows:

Name.	Competition.	Donor.
Burns McCorquodale, Embro	Inter-County Live Stock Judging Competition Championship Contest. High Man on Western Ontario Team.	Armour's Bureau of Agricultural Research and Economics, Chicago, Ill......
Echlin Croskery, Kinburn...	Same as Above. High Man on Eastern Ontario Team.	Armour's Bureau of Agricultural Research and Economics, Chicago, Ill.,.....
Pringle Brown, Ayr.........	Brant County Judging Competition	Canadian Packing Co., Brantford..................
Frank Town, Woodstock, R.R. No. 1.............	Oxford " " "	Jas. Harris, Harris Abattoir Co., Toronto...........
Howard Hallock, Woodstock, R.R. No. 6..............	" " " "	Jas. Harris, Harris Abattoir Co., Toronto.............
W. G. Shaw, R.R. No. 2, Mono Road.............	Peel " " "	Local Contribution.........
G. O. Kirk, R.R. No. 1, Inglewood................	" " " "	" " ....
Harvey Hallman, R.R. No. 1, Ayr....................	Waterloo " " "	Harris Abattoir...........
Fred M. Snyder, R. R. No. 1, Waterloo...............	" " " "	" " ....
Willie Watson, R.R. No. 1, Troy..................	Wentworth " " "	Junior Farmers' Improvement Association.........
Norman Bell, R.R. No. 1, Glanford Station.........	" " " "	Royal Bank...............
Jas. Oliver, Kintore.........	Coach for School Fair Judging Team	Rural Service Department Merchants Bank.........
Robert Calder, Kintore.....	Coach for School Fair Judging Team	By Friends...............

Armour's Bureau of Agricultural Research and Economics, which paid the expenses of two of the party, entertained the Ontario boys during their stay in Chicago, as a part of Armour's Club Tour party consisting of about 500 winners in Boys' and Girls' Club work throughout the United States, which was visiting Chicago at the same time. Upon arrival in Chicago, therefore, the Ontario boys joined the Armour Junior Club Tour party and were shown every consideration during the entire trip. At the Junior Club Rally and Reception the boys from Ontario were given a very enthusiastic reception, not only by the officials in charge of the Junior Club Tour, but also by the State Club leaders and Boys' and Girls' Club Members.

Visits were made to the International Live Stock Shows, Armour's Meat Packing and By-products plant, the Art Institute, Marshall Field's Department store, the financial district, Lincoln Park, the Zoo and the McCormick plant and were entertained in the Armour Gymnasium by the Armour Dramatic Club. Orchestra and Glee Club. Every effort was made by Mr. G. L. Noble of Armour's Bureau of Agricultural Research and Economics to see that every person in the party was shown every courtesy and consideration.

At various times during the week, addresses were delivered to the party by such prominent United States officials as Secretary for Agriculture Meredith; J. R. Howard, President American Farm Bureau Federation; Geo. E. Farrell, in charge of Boys' and Girls' Club Work in Northern and Western States; O. H. Benson of Eastern States League and others.

The educational value of this trip cannot be over-estimated and will doubtless have far-reaching effects. The boys making this trip, seeing Chicago, its industrial plants and the International Live Stock Show, received not only an education but an inspiration which will be reflected in the Junior Farmers' movement throughout Ontario. These young men have already been called upon to address Junior Farmers' meetings on their trip to Chicago, and its educational value. County Judging Competitions will undoubtedly increase and it is expected that arrangements will have to be made for a much larger party this year.

Competitions Conducted By Junior Farmers

Profit Competitions with various farm crops and live stock have been conducted for several years by Ontario Junior Farmers under the direct supervision of the Agricultural Representatives. These Competitions have been of great value, not only in stimulating interest among the young farmers in field crops and live stock, but also in encouraging them to keep accurate farm records and to study and follow closely improved methods of management and feeding. All Competitions in 1920 were open to young men under 30 years of age, except that winners in previous years were not eligible. Two hundred and forty contestants took part in the various competitions conducted during the past season.

Competitions during 1920 were conducted as follows:—Acre Profit Competitions with Barley, Turnips, Corn for Silage, Sugar Beets, Potatoes, Oats: Dairy Profit Competition; Baby Beef Competition and Feeding Hogs for Profit Competition. In estimating the cost of production in the Acre Profit Competitions. labour, etc., was computed on the following basis: Man labour, 30c. per hour, horse labour. 15c. per hour, barnyard manure applied to crop in competition. $1.00 per ton, and to the previous crop, 50c. per ton. The rent of land charged against the crop was one-eighth the selling value of land in the district. Cost of plowing was figured at a flat rate of $4.00 per acre. In these Competitions nothing was allowed for overhead expenses such as depreciation on implements, etc.

Values used in compiling the Reports were as follows:

ACRE PROFIT.

	Value Seed Used in Planting.	Value Product Harvested.
Turnips,	$1.00 per lb.	$ .15 per bushel.
Spring Wheat,	3.00 " "	.15 " "
Mangels,	.75 " "	.90 " "
Potatoes,	3.00 " bus.	2.05 " "
Oats,	1.25 " "	.70 " "
Barley,	2.00 " "	1.00 " "
Field Beans,	5.75 " "	3.00 " "
Field Peas,	3.25 " "	3.00 " "
Corn for Seed,	3.75 " "	1.30 " "
Corn for Silage,	2.75 " "	6.00 " "

For feeding Hogs, Baby Beef and Dairy Profit feed consumed was valued as follows:

Ground Oats,	$60.00	per	ton.
Ground Barley,	55.00	"	"
Ground Peas,	90.00	"	"
Ground Rye,	65.00	"	"
Ground Wheat,	85.00	"	"
Ground Corn,	65.00	"	"
Corn on Cob,	60.00	"	"
Bran,	45.00	"	"
Shorts or Middlings,	52.00	"	"
Oil Cake,	80.00	"	"
Cotton Seed Meal,	84.00	"	"
Gluten Feed,	72.00	"	"

Low Grade Flour or Red Dog,	$ 70.00	per	ton.
Tankage	100.00	"	"
Hay,	18.00	"	"
Alfalfa,	20.00	"	"
Straw,	8.00	"	"
Silage,	6.00	"	"
Roots,	6.00	"	"
New Milk,	50.00	"	"
Skim Milk,	9.00	"	"
Butter Milk,	7.00	"	'
Whey,	4.00	"	"
Green Feed,	2.00	"	"
(Kind named in report)			

Pasture, $1.00 per hog; $1.00 per month in Dairy Profit Competition and 75c. pre month in Baby Beef Competition. Nursing cow $6.00 per month in Baby Beef Competition.

In Feeding Hogs for Profit Competitions, hogs, live weight, fed and watered, were valued at $19.00 per cwt.

In Baby Beef Competition, Baby Beef was valued at 16c. per lb.

In Dairy Profit Competition, Butter Fat was valued at 63c. per lb. for the first three months and at 60c. per lb. for the rest of the period and skim milk at 45c. per cwt.

The prize for the winner in each competition consisted of railway transportation, board and lodging while attending a two weeks' Course in Agriculture at the Ontario Agriculture College, Guelph, or the Kemptville Agricultural School, Kemptville. The winners in Western and Northern Ontario attend the Courses at the Ontario Agricultural College while the Eastern Ontario winners attend the Course at Kemptville Agricultural School. Thirty-one winners in the various Competitions conducted during 1920 were provided with transportation to Guelph to attend Short Courses and similar provision was made for fifteen winners in Eastern Ontario to attend the Agricultural Short Course at Kemptville.

In each Acre Profit Competition the prize was awarded to the competitor showing the largest net profit per acre. In the case of grain crops each contestant competed with a field of at least 5 acres and was permitted to also enter the Standing Field Crop Competition, while in the case of roots, potatoes, and corn, the area was one acre. The contestants were required to keep accurate records of labour, cost of seed, fertilizer, etc., and in making awards all costs including cost of hauling from field, etc., were taken into consideration.

In the Baby Beef Competition the prize was awarded to the Contestant producing the best steer. Each contestant was required to care for and feed the calf and keep an accurate record of the kind and amount of feed consumed. Only calves born after September 1st, 1919, were allowed to be entered and the competition concluded in November, 1920.

The awards in the Dairy Profit Competition were based on the largest net return from one heifer. The contestant in this case was required to feed and care for the animal, keep accurate records of feed consumed and of the milk production. The contestant also secured a 2-ounce sample of the animal's milk three times per month. These samples were forwarded to the Agricultural Representative to be tested for butter fat. The cost of feed consumed, together with the value of the butter fat and skimmed milk, were taken into consideration in computing the net profit.

The Feeding Hogs for Profit Competition awards were mode on the following basis: 50 points for highest net profit per cwt. of gain, 25 points for type and finish and 25 points for best kept records and report. Each contestant was required to feed at least four hogs, keep an accurate record of kind and amount of feed consumed; also to produce accurate information as to date of birth of animals, weight at six weeks of age, when feeding period commenced and certified weights of hogs at conclusion of feeding period. From the records provided the net profit was computed, points being deducted for hogs over 220 or under 180 lbs. live weight.

The following tables furnish a list of the winners and particulars concerning yield, cost of production and profit:

ACRE PROFIT COMPETITIONS
POTATOES 90c. PER BUSHEL

County.	Winner	Yield.	Value.	Cost Production.	Profit.
Manitoulin............	Alfred Harold Burt, Gore Bay... Sand, following pasture, farmed forty years, sprayed, 7 loads manure, Davies Warrior.......	268	241 20	103 72	274 96
Middlesex............	Wm. West Taylor, R.R. No. 1, Ettrick..................... Light loam, following hay, farmed 40 years, Paris Green, Green Mountains.	300	270 00	106 20	163 80
Lanark................	Kenneth Robertson, R.R. No. 2, Almonte................... Sandy loam, following hay, farmed four years, Paris Green, Green Mountains.	267	240 30	106 08	134 22
Norfolk...............	Howard Turrey, R.R.I., Vittoria. Clay loam, following corn, farmed 50 years, 250 lbs. commercial fertilizer, arsenate of lead, Irish Cobblers.	280	252 00	124 35	127 65
Peterborough..........	Joseph Carr, R.R. No. 2, Havelock Sandy loam, following oats, Paris Green, Irish Cobbler.	217	195 30	69 25	126 05
Grenville.............	Frederick J. Higgs, Kemptville.. Sandy loam, following potatoes, farmed 30 years, 10 loads manure, Paris Green, Pioneer Pride	165	148 50	79 25	68 55
Simcoe................	Clifford, M. Martin, New Lowell. Sandy loam, following oats, farmed 47 years, 16 loads manure, Paris Green, American Wonder.	168	151 20	95 85	55 35

OATS 70c. PER BUSHEL

County.	Winner.	Yield.	Value.	Cost Production.	Price.
Frontenac	John Watts, Wolfe Island Black loam, following oats, farmed 50 years, Banner.	95	66 50	23 45	43 05
Wentworth	Daniel T. Fletcher, R. R. No. 1, Hannon Clay loam, following barley and blue grass, half each, farmed 40 years.	90	63 00	25 50	37 50
Lennox and Addington	D. R. Sharpe, R. R. No. 2, Napanee Black clay, following summer fallow, farmed 80 years, Banner.	77 bus. 11 lbs.	54 13	20 25	33 88
Wentworth 2nd prize)	Walter Wilson, R.R. No. 4, Hamilton Clay loam, following, corn and potatoes, farmed 60 years, Scottish Chief	80 bus.	56 00	24 55	31 45
Middlesex	Harold Pack, R.R. No. 1, Byron. Clay loam, following potatoes, formaldehyde, O.A.C. 72, farmed 75 years	80½ bus	56 35	25 32	31 30
Lambton	Russell C. Parker, R.R. No. 8, Watford Sand, following corn, farmed 35 years, Banner.	67 bus. 23 lbs.	47 37	25 78	21 59
Wellington	Harvey Loughead, R.R. No. 1, Belwood	55 bus.	38 50	17 10	21 20
Elgin	Cecil Bowen, Aylmer Clay and sandy loam, following corn, farmed 30 years, Swedish Giant.	$75^{4}/_{17}$	52 67	31 75	20 91½
Welland	Leo B. Haist, R.R. No. 5, Fenwick Sand and black loam, following corn and pasture, farmed 75 years, O.A.C. 72	bus. 62	$43 40	$23 74	$19 66
Norfolk	Max Everett, R.R. No. 2, Simcoe Sandy loam, following corn, farmed 50 years, Banner Oats	$69^{3}/_{5}$	48 72	33 52	15 20
Prescott and Russell	Simon Bertrand, R.R. No. 2, L'Orignal, Clay loam, following oats, farmed 30 years, Banner.	49	34 30	24 02	10 28

BARLEY, $1.00 PER BUSHEL

County.	Winner.	Yield.	Value.	Cost production.	Profit.
Lennox and Addington..	Allan Craven, R.R. No. 1, Bath..	bus. 42	$42 00	$23 03½	$18 96½
	Sandy loam, following potatoes, farmed 100 years, O.A.C. 21...				
TURNIPS, 15c PER BUSHEL					
Muskoka and Parry Sound..............	Newton Anderson, R.R. No. 4, Powassan..................	818	122 70	71 62	51 08
	Clay loam, following potatoes, farmed 30 years, 12 loads manure, Purple Top Swede.				
York................	Chas. F. Casey, R.R. No. 3, King	857	128 35	99 70	28 65
	Clay loam, following oats, farmed 25 years, 25 loads manure, Purple Top Swede.				
CORN FOR SILAGE, $6.00 PER TON					
Huron................	Cecil J. Stewart, R.R. No. 1, Kirkton..................	26 tons	156 00	47 78	108 22
	Clay loam, following oats, farmed 50 years, 10 loads manure, Early Imperial Leaming, 3 parts to 1 of White Cap.				
Peterborough....	Russell Jenkins, R.R. No. 1, Norwood......................	23 tons	138 00	40 73	97 27
	Clay loam. ollowing corn, farmed 60 years, 10 loads manure, big crop ensilage corn.				
SUGAR BEETS, $12.00 PER TON					
Kent................	Geo. E. Sherman, R.R. No. 1, Northwood..................	28 tons 1121 lbs.	342 72	132 66	210 06
	Clay, following tobacco, farmed 50 years, 8 loads manure.				

FEEDING HOGS FOR PROFIT COMPETITION.

County and Winner.	Length of feeding period.	Average cost of feed per hog.	Average weight of hogs, live weight	Average gain in weight from 6 weeks of age.	Value per hog of gain in weight	Average net profit per hog	Average net profit per cwt. of gain .
LANARK:							
Neil McIntosh, R.R. No. 5, Almonte....	April 29–Oct. 9.	$12 07	lbs. 186¼	lbs. 165	$31 35	$19 20	$11 60
75% Chester-White. 25% Yorkshire.							
MANITOULIN:							
Stanley Stringer, Sheguindah, No. 1	May 28–Nov. 5	13 96	209¼	187¼	35 58	21 62	11 54
Yorkshire-Chester.							
LAMBTON:							
Elgin V. Fuller, R.R No. 4, Watford..	Feb. 2–June 24.	13 59	195	170	32 30	18 71	11 00
KENT:							
John Langford, Kent Bridge.....	June 1–Nov. 30	17 29	212½	189	35 91	18 62	9 85
Tamworth and Chester grade....							
LENNOX AND ADDINGTON:							
Kenneth Hill, Bath.	June 8–Nov. 9.	20 70½	234½	226½	43 03½	22 33	9 85
Yorkshire and Berks.							
NORFOLK:							
Jas. Pepper, Simcoe, R.R. No. 6.....	May 19–Nov. 19	21 08	226	200	38 00	16 92	8 64
Chester-White and Berkshire.......							
WELLAND:							
Ed. O. Drysdale, R.R. No. 3, Welland...........	May 29–Nov. 26	20 57	215	191	36 29	15 71½	8 23
MUSKOKA:							
Stanley Anderson, R.R. No. 1, Powassan...........	May 31–Sept. 15	16 97	180	155	29 45	12 48	8 05
Yorkshire and Berkshire.							
ONTARIO:							
Delson Shier, Cannington..........	May 12–Oct. 14	21 00	201	178¼	33 87	12 87	7 22
Yorkshire.							
WATERLOO:							
Donald Robertson, R.R. No. 2, Ayr..	May 3–Nov. 23	22 99½	215	194¾	37 00	14 01	7 20
Yorkshire grade.							
DUNDAS:							
Geo. B. Baker, Newington..........	May 7–Oct. 22	27 66	175	157	29 83	2 17	1 38
Tamworth, pure bred.							

DAIRY PROFIT COMPETITION

County and Winner.	Value of feed.	Milk. lbs.	Fat. %	Fat. lbs.	Value. $	Skim Milk. lbs.	Value. $	Net Profit $
LENNOX AND ADDINGTON: Percy Merritt, Sillsville..........	36 69	9,099½	2.83	254 59	156 33	8844 41	39 79	159 43
DUNDAS: Jas. Deeks, Williamsburg.	57 40	6,864.3	3.57	245 06	150 40	6,619 24	29 78	122 78
Ayrshire.								
LANARK: Herb. James, R.R. No. 2, Almonte.	49 75	6,401	3.1	194 05	119 23	6,206 95	27 92	97 40
Holstein.								
PRESCOTT AND RUSSELL... Gregorie Chatelain, Curran........	36 16	4,937.5	3.75	181 43	111 19	4,756 07	21 40	96 43
Grade Ayrshire.								

BABY BEEF COMPETITION

County and Winner.	Date of birth.	Total Cost of feed consumed plus initial value of steer, $5.00	Weight of Steer.	Value	Net Profit.	Total Score on conformation, according to score card.
		$	lbs.	$	$	
BRANT: Robt. Cochrane, R.R. No. 3, Ayr....................	January.......	148 20	1,000	160 00	11 80	....
HURON: Wilber Turnbull, R.R. No. 2, Brussells...............	Jan. 19, 1920...	114 98	810	129 60	15 62	86½
Shorthorn Grade						
A. W. Etherington, Hensall, R.R. No. 1..............	Nov. 28, 1919..	109 10	900	144 00	34 90	84¾
Shorthorn.						
LAMBTON: T. Alex Edwards, R.R. No. 4, Watford.................	Dec. 20, 1919...	83 70	660	105 60	21 90	68.5
Aberdeen Angus Grade.						

BABY BEEF COMPETITION—Continued

County and Winner.	Date of Birth	Total Cost of feed consumed plus initial value of steer, $5.00	Weight of Steer.	Value	Net Profit	Total Score on conformation according to score card.
ONTARIO:						
Orvan Chambers, Wilfrid....	....	110 22	940	105 40	40 18	92
WATERLOO:						
O. E. Lerch, R.R. No. 2, Preston.	Dec. 2, 1919....	125 81	975	156 00	30 19	91
Shorthorn.						
WELLINGTON:						
Gordon Saunders, Arthur....	Sept. 8, 1919...	102 90	950	152 00	49 10	75
Shorthorn Grade.						

Inter-County Live Stock Competitions

One of the most important and popular Competitions with which the Agricultural Representatives and Junior Farmers are connected, is the Inter-County Live Stock Judging Competition conducted each year at the Guelph and Ottawa Winter Fairs. Prizes amounting to $225.00 were offered in individual prizes at each of these Fairs and in addition a Silver Trophy for the team standing highest. The regulations were the same as in former years and teams of three young men not over twenty-five years of age, trained by the Agricultural Representatives were required to judge two classes each of Beef Cattle, Dairy Cattle, Horses, Sheep and Swine. It was necessary for each competitor to mark his placings for each class and write his reasons on cards provided and also give oral reasons for his placings before expert judges specially selected for this purpose. Fifty per cent. was allowed for correct placings and fifty per cent. for perfect reasons.

The Duff Trophy and $225.00 in individual prizes offered at the Guelph Winter Fair was competed for by twenty-two teams, the trophy being won by York County. As this was the third time for York County to win the Duff Trophy, it becomes the permanent property of that County.

The following table gives the team scores in the various classes and their total score:

INTER-COUNTY JUDGING COMPETITION
Guelph, December 4th, 1920.

STANDING OF CONTESTING TEAMS.

County.	Horses.	Beef.	Dairy.	Sheep.	Swine.	Total.
York	454	453	390	537	444	2,278
Victoria	373	340	427	489	451	2,080
Oxford	513	424	345	432	366	2,080
Halton	464	342	425	407	433	2,071
Essex	354	508	373	398	341	1,974
Waterloo	480	355	416	310	341	1,962
Wellington	388	310	435	460	361	1,954
Lambton	398	394	438	418	284	1,932
Wentworth	468	351	369	346	394	1,928
Durham	456	323	363	426	332	1,900
Peel	437	313	323	439	361	1,873
Brant	340	448	369	358	336	1,851
Bruce	390	385	393	377	303	1,848
Simcoe	469	422	294	402	256	1,843
Middlesex	463	414	348	309	273	1,807
Huron	400	302	304	397	345	1,792
Grey	390	373	366	369	225	1,723
Ontario	260	462	296	380	262	1,660
Welland	377	325	313	325	319	1,659
Dufferin	412	309	306	342	282	1,651
Norfolk	324	296	318	368	324	1,630
Haldimand	350	289	317	332	336	1,624

The Peter White Trophy and $225.00 in individual prizes offered at the Ottawa Winter Fair were competed for by eight teams, the trophy being won by Grenville County. Details of the standing of the various teams are given below:

INTER-COUNTY JUDGING COMPETITION
Ottawa Winter Fair, Jan. 19th and 20th, 1921.

COUNTY STANDING. POSSIBLE SCORE—3,000.

County.	Horses.	Beef.	Dairy.	Sheep.	Swine.	Total.	Standing
Grenville	490	392	395	435	434	2,146	1st.
Lanark	408	363	452	198	459	1,880	2nd
Leeds	358	328	405	337	366	1,794	3rd
Lennox and Addington	339	340	371	277	364	1,691	4th
Peterborough	463	316	390	221	284	1,674	5th
Glengarry	338	242	378	317	388	1,663	6th
Frontenac	318	378	368	286	292	1,642	7th
Carleton	403	289	353	283	248	1,576	8th

Championship Judging Competition

The York County Inter-County Judging team, winners of the Duff Trophy at the Guelph Winter Fair and the Grenville County Inter-County Judging team, winners of the Peter White Trophy at the Ottawa Winter Fair, competed for the

Provincial Championship Trophy donated by the Union Stock Yards Company and Toronto Packers on March 9th and 10th, 1921. This Championship contest was conducted in Ontario County and at the Union Stock Yards. The following classes of stock were judged at the various farms visited as indicated below:

Beef Cattle	W. A. Dryden, Brooklyn,
Heavy Horses	J. Vipond, Brooklyn,
	F. Batty, Brooklyn,
Dairy Cattle	Provincial Hospital Farm, Whitby,
Sheep	F. Batty, Brooklyn,
	Gordon White, Myrtle.

Swine classes were judged at the Union Stock Yards. Toronto.

In addition to donating the Championship Trophy the Union Stock Yards Company entertained the two teams and paid all their expenses. The judging teams were also entertained at the Ontario Agricultural College Alumni Banquet, where the trophy was presented to Grenville County, the winning team, by Mr. Fletcher, of the Union Stock Yards Company.

The following gives the score of the two teams in the Championship Contest:

Grenville County won by 83 points out of a possible 3,000.

	GRENVILLE	YORK
Heavy Horses	546	434
Beef Cattle	501	424
Dairy Cattle	389	414
Sheep	408	367
Swine	293	415
	2137	2054.

Teams:—

GRENVILLE COUNTY, Agricultural Representative, W. M. Croskery, Kemptville.
Harold E. Wilson, Merrickville.
Wilbert Davidson, Kemptville,
Harry Lee, Kemptville,

YORK COUNTY, Agricultural Representative, J. C. Steckley, Newmarket.
Clifford Playter, Newmarket,
Ross Anderson, Edgeley.
Wm. Hoiles, Maple.

Judging Competitions for farmers' sons between the ages of fourteen and thirty years have been conducted at the Toronto and Ottawa Fall Exhibitions for the past three years and at the London Exhibition last year for the first time. These competitions are for individual competitors (not judging teams) and Agricultural College graduates are not eligible. At Toronto the Judging Competition included Heavy Horses, Beef Cattle, Dairy Cattle. Sheep. Swine, Poultry, Fruit and Vegetables. Grain and Roots. Competitors were allowed to compete in one class of live stock including poultry and either roots and grain or fruit and vegetables. At Ottawa the Judging Competition included classes in Heavy Horses. Beef Cattle. Dairy Cattle, Sheep and Swine. and competitors were permitted to enter in two classes only. At London the Competition included classes in Heavy Horses, Beef Cattle and Sheep and competitors were allowed to enter in two classes only.

The Judging Competitions at the Fall Exhibitions were conducted on much the same basis as the Inter-County Judging Competition, the contestants being allowed a certain number of minutes for placing each class and writing reasons, after which they went before judges and gave oral reasons for their placings. The awards were made on the basis of fifty points for placings and fifty points for reasons.

Toronto Exhibition offered $1,500.00 in prizes for this Judging Competition; Ottawa, $445.00 and London, $100.00. At Toronto last year 223 farmers' sons competed, at Ottawa, 75, and at London, 40. These judging competitions at the fall exhibitions are very popular and the number of competitors increases each year.

Junior Farmers' Plowing Competitions.

There were twelve Junior Farmers' Plowing Competitions conducted last year with one hundred and thirty-two Junior Farmers competing. These Competitions were organized by the Junior Farmers' Improvement Association under the supervision of the Agricultural Representatives. Considerable interest has been shown in the plowing competitions by the Junior Farmers and as the plowing is done on the home farm many compete who would not take part at a regular plowing match. The judges for these Competitions are supplied by the Department, and they report a marked improvement in the work from year to year. Liberal prizes are offered for the plowing competitions and are raised locally in all cases.

As a result of the Junior Farmers' Plowing Competitions, a number of young men have become interested in better plowing and have competed at local township or county plowing matches. It is interesting to note that a Junior Farmer won the Championship at a township plowing match in Wentworth County last year.

Boys' and Girls' Club Work.

Boys' and Girls' Clubs are making steady growth throughout the Province and excellent results are being obtained not only from the Clubs which have been organized for some time but also from the Clubs which have been organized during the past year. Nothing but pure-bred registered animals are purchased for members of the Live Stock Clubs, and in this way the young farmers secure an early training in the breeding and management of pure-bred stock of the best type is sure to play an important part in the development of Ontario's live stock industry in the future.

The popularity and success of the Boys' and Girls' Live Stock Clubs, where organized, is probably due to the love young people have for animals, also to the fact that they own the animals, assume the financial obligation in connection with them which must be discharged, and the anticipation of eventually making money for themselves. They have been "set up" in business.

The various Live Stock Clubs formed in 1920, were organized along the same lines as those previously established, and as organization rules for various Clubs were given in the report for 1919, they need not be repeated here.

The Boys' and Girls' Live Stock Clubs organized previous to last year consisted of six Calf Clubs, ten Pig Clubs, two Sheep Clubs and two Live Stock Clubs, with a total membership of 450. During 1920 the following Clubs were organized: Five Calf Clubs, six Pig Clubs, three Sheep Clubs, two Live Stock Clubs and one Potato Club with a total membership of two hundred and forty-seven.

These Clubs were financed in the same manner as formerly, that is, with funds advanced by the banks on the members' notes, satisfactorily endorsed by parents or guardians, and the orignal cost included insurance on the animals for the duration of the notes.

The following is a summary of the Boys' and Girls' Clubs organized during 1920:

County.	Name of Club.	Date Organized.	Membership.	Age of Members.	Date of Distribution.	Breed.	Price.
PIG CLUBS							
Essex.....	Essex County Duroc Jersey Pig Club.	June 5, 1920..	20	10–18	June 5......	Duroc-Jersey.......	Pure-bred, $20.00; Grade, $10.
"	Kingsville Duroc-Jersey Pig Club....	June 15, 1920	11	10–18	June 15.....	Duroc-Jersey	Pure-bred $20.00; Grade, $10.
"	Woodslee Duroc-Jersey Pig Club....	June 16, 1920	12	10–18	June 16.....	Duroc-Jersey.	Pure-bred $20.00; Grade, $10.
"	Essex Poland China Pig Club.	June 26, 1920	8	10–18	June 26.	Poland-China.	Pure-bred, $20.00; Grade, $10.
Kent.......	Eberts Tamworth Pig Club.	May, 1920.	17	8–15	....	Tamworth.	$20.00
"	Kent Bridge.. Chester White Pig Club.	May, 1920...	28	8–15	....	Chester-White.	$20.00.
Haldimand	North Cayuga Boys' and Girls' Pig Club........	May, 1919...	9	12–16	May, 9. 1920	Pure-bred Yorkshire	$70.00.
CALF CLUBS:							
Bruce.....	Bruce Shorthorn Calf Club	March, 1920.	32	14–22	April 2.	Shorthorn.	$195.–$290.
Manitoulin	Mindemoya Shorthorn Calf Club.	Sept. 23, 1920	10	10–18	Oct. 21.	Shorthorn.	$100–$260
Sudbury...	Sudbury Boys' and Girls' Calf Club.	Aug, 1920....	19	8–17	Nov. 20, 1920	Shorthorn, Hereford, Ayrshire, Holsteins	$97.46 to $147.46.

County.	Name of Club.	Date Organized	Membership.	Age of Members.	Date of Distribution	Breed.	Price.
SHEEP CLUBS:							
Manitoulin	Mindemoya Oxford Sheep Club.	Mar. 5, 1920	20	12–20	Mar. 13.	Oxford.	$20–$45.
Peterboro'.	Asphodel Sheep Club.	Sept., 1919...	8	12–16	Dec., 1919...	Shropshire.	
Peel......	Albion Shropshire Sheep Club.	Sept., 1919..	10	12–20	Dec. 31, 1919	Shropshire.	$40.
LIVESTOCK CLUBS:							
Dufferin...	Shelburne Pure-Bred Live Stock Club.	Feb., 1920...	10	......	....	1 Shorthorn, 1 Angus 1 Yorkshire	$200 $150 $70.
POTATO CLUB:							
Wellington.	Erin Potato Club.	May,1920...	30	10–15	May.	Green Mountains & Cobblers.	

The Bruce Shorthorn Calf Club was organized by the Agricultural Representatives for Bruce County in co-operation with a committee of the North Bruce Breeders' Shorthorn Club. The rules governing this Club are as follows:

1. The Club shall be called the "Bruce Shorthorn Calf Club."

2. The objects of the Club are:—
   1. To create a deeper interest in pure-bred Live Stock.
   2. Provide a good lot of Shorthorn heifers with the hope that they will be used as foundation stock for a splendid herd of Shorthorns.
   3. Interesting boys and young men in the feeding and breeding of cattle.
   4. Encouraging the proper care of stock and best methods of feeding.
   3. The Club will be directed by the Agricultural Representative, assisted by committee of the North Bruce Breeders' Shorthorn Club and the money will be advanced by the Bank of Hamilton, Port Elgin Branch, and the Merchants Bank, Paisley Branch.
   4. Membership, boys and young men of 14 and under 22 years of age.
   5. Registered Scotch Shorthorns will be distributed and the members will be allotted a calf by drawing for it.
   6. All calves will be distributed from the one point on the same day.
   7. All heifers will be registered in the boy's name.
   8. A note for eight months will be given by the member.
   9. When the note falls due the calf must be paid for and cannot be sold before this is done.
   10. A show will be arranged for some time in the fall at which several prises will be given.
   11. All heifers kept by the boys must be bred to a bull approved by the committee.
   12. The Department of Agriculture will assist in any way possible by giving information on feeding, care, etc.
   13. Only one member of a family will be supplied with a calf.
   14. The committee reserves the right to limit the membership, reject an application, or make any additional rules they deem advisable for the satisfactory conduct of the Club.

15. Applications considered in the order in which they are received.
16. Applications for membership close March the 15th.
17. Calves will be distributed in March or early in April.

The Agricultural Representative for Bruce submits the following information regarding method of organizing this Club:

"Applications were received before March the 15th. Membership was open to boys in the north of the County of fourteen and under twenty-two years of age. The average age of the thirty-two members was seventeen and one-half years. Only Scotch Shorthorn heifers were purchased. These calves varied in age from 8 to 14 months with the average being 11½ months. They were purchased at an average cost of $247.95, this included transportation, cost of distributing, and transferring pedigrees from sellers to boys. The average distributing price was $249.21, the range being from $195.00 to $290.00. Distribution dates were April 1st and 2nd. At Paisley, on the 1st, fourteen calves were given out while the Port Elgin boys received theirs on the 2nd. After the calves arrived they were all valued by our committee, the price of the calf along with a number, was held by our banker who put them in a hat, the boys then came up and drew in the order in which their applications were received. That is, the first applicant who sent in his application for a calf was given the first chance. This was made possible as all our application forms were dated when we received them in our office. After all the boys had received their tickets they then came forward and signed their note which was prepared corresponding to the ticket tthe boy received. The Club was financed through the co-operation of the Merchants Bank, Paisley, Mr. A. Gibson; of the Bank of Hamilton, Port Elgin, Mr. J. W. Ranney, Manager. As it was necessary to pay for some of these calves a week or so before they were delivered, checks were issued in the name of the club and when these were received the banker treated them as an over-draft, holding a personal note signed by one of the members of the committee, and myself as security. The day of the distribution, the notes were all deposited in the Bank. These were discounted and the interest on the over-draft was then taken care of. The balance of the calves were then paid for and our financial arrangements proved very satisfactory. The boys paid for these calves by giving a note for eight months, these to bear interest at 6%. They were insured for full value for twelve months by the General Animals Insurance Co., Montreal. This insurance was placed the day the calves were delivered to the boys."

During the summer the Agricultural Representative or his Assistant visited the members of the Club in order to keep in close touch with the progress being made and to advise them in the care of their animals. On October 27th a Calf Club Show was held in conjunction with the County Pure Bred Live Stock Sale. The Calf Club members were given the oppportunity of selling their calves, but only two were sold. Prizes were offered at this Calf Club Show for calves of different ages as follows:—

Calves born previous to April 1st, 1919.
" " between April 1st-30, 1919.
" " between May 2nd—June 2nd, 1919
" " After June 20th, 1919.

In addition to prizes in these classes special prizes were offered as follows:—

Best fitted calf—Silver Cup, value $25, General Animal Insurance Co.
Best shown Calf (1) Bag Blatchford Calf Meal $2.55
(2) " " " " 2.55
Grand Champion Calf—Grand Champion ribbon.

Professor Geo. E. Day, Secretary, Dominion Shorthorn Breeders Association acted as judge.

The Agricultural Representative makes the following further comments in regard to this Club:—

"The pleasing feature about the Calf Club is the fact that thirty of these calves are being retained in the County. These calves are also to be bred to sires that are approved by the committee, the boys being requested to notify us what sires they intend to breed to. If these are not recognized, the boys will be informed of the fact and advised to go some place else. A numbers of our breeders have offered the Club Members a free service of their herd bulls and the boys will take advantage of this. While the majority of the calves went into good hands a few of them did not, but these boys are being encouraged to take more interest in their calves and we hope that by another year they will be taking good care of their animals. A number of the calves that were thin have done exceptionally well and one of the boys who received what we considered one of the poorest calves, was able to win second prize in one of the classes in fairly strong competition.

The farmers in the various neighbourhoods where the calves were distributed have taken an active interest in this and many favourable comments have been heard at various times in connection with the satisfactory kind of stock that has been introduced. At a number of the Fall Fairs these calves were able to practically sweep all the classes in competition with the local breeders."

Erin Boys' and Girls' Potato Club.

During the spring of 1920, the Agricultural Representative in Wellington County distributed potatoes to thirty boys and girls in Erin Township, and later called a meeting at which the Erin Township Boys' Potato Club was organized. The thirty members represented four different school sections and the Board of Directors included three members from each school section. In June a directors' meeting was held at which the officers were elected. Late in July, The Erin Boys' and Girls' Potato Club held another meeting which was addressed by Professor J. E. Howitt and A. E. Whiteside of the Ontario Agricultural College. This meeting was in nature of a field day, the Club members receiving a practical demonstration in the identification of Potato diseases and a lecture on cultural methods in connection with Potatoes. The members of this Club did good work during the year, taking excellent care of their plots of potatoes and securing very satisfactory results. Boys' and Girls' Clubs of this nature, as well as Live Sttock Clubs are worthy of every consideration and support from farmers and others throughout the Province.

Experimental and Demonstration Work.

Potato Demonstrations

During the past three years, Potato Demonstrations have been conducted by the Agricultural Representatives, with the idea of showing the relative value of good seed potatoes from Northern Ontario, Old Ontario and the Maritime Provinces. Only certified seed was used in these demonstrations, except in connection with Old Ontario Green Mountains and Irish Cobblers, where common stock and certified seed potatoes were both included. The common stock seed was included in the 1920 demonstrations for the purpose of ilustrating the difference in yield between common and certified or selected seed.

One bushel of certified seed, of each variety and from the various sources, sufficient to plant one tenth of an acre, was supplied to each Agricultural Representative where a demonstration was conducted. The Agricultural Representative arranged to have the demonstration conducted on some good farm with uniform soil conditions, well drained and fertilized. The farmer was given assistance in treating the seed for Scab and Blackleg, before planting, and also in laying out and planting the various plots. The farmer was also give instruction and assistance in spraying during the growing season and accurate records of the yield of each lot was obtained at time of harvesting.

During the growing season these demonstration plots, which were located in twelve different counties, were very carefully inspected for disease by a representative where a demonstration was conducted. The Agricultural Representative accurate records made of the amount of the various diseases, such as Black Leg, Mosaic, Leaf Roll, etc.

Results:—The demonstrations were confined, as in 1918 and 1919, to three varieties.—Irish Cobbler, Green Mountain and Rural New Yorker (Dooley). The following tables give the percentage of Leaf Roll, Mosaic and Black Leg together with the yield in bushels per acre of seed from Northern Ontario. Old Ontario and the Maritime Provinces. In Old Ontario, both selected and common seed were used.

TABLE A—IRISH COBBLER

County.	Northern Ontario Percentage.				Old Ontario, selected Percentage.				Old Ontario, common Percentage.				Maritime Percentage.			
	Leaf Roll.	Mosaic.	Black Leg	Yield.	Leaf Roll.	Mosaic.	Black Leg.	Yield.	Leaf Roll.	Mosaic.	Black Leg.	Yield.	Leaf Roll.	Mosaic.	Black Leg.	Yield.
				bus.				bus.				bus.				bus.
Bruce	1.0	......	.3	153	1.5	1.5	......	181	4.5	.5	......	110	3	2.5	1	176
Carleton	.5	......	......	240	.4	1	......	226	......	......	......	......	......	......	......	253
Haldimand	......	.5	......	153	2	.5	....	168	......	......	......	148	1	......	......	151
Hastings	.5	......	1	292.5	1.5	1.5	......	221.8	......	......	......	......	1	.5	......	282
Kent	......	......	......	207	3.5	1	......	225	......	......	......	169	2	......	.5	229
Middlesex	......	......	.5	266.7	1.5	......	......	316.6	6	2	......	216.6	......	......	.5	283.3
Ontario	......	......	.5	193.2	4.5	......	......	216	......	......	......	225	......	......	1	220
Peel	.5	1	2.5	142.6	5	2	1.5	122.6	25.5	5	6	65	......	1	......	180.8
Renfrew	.5	......	.5	205	3	.5	......	196	9.5	6.5	......	134	......	......	.5	196
Simcoe	......	15	.5	93.3	3	......	3.5	102	......	......	......	......	......	......	.5	85.3
Welland	......	......	......	232	......	......	......	238.1	......	......	......	251.7	......	......	......	254.8

TABLE B—GREEN MOUNTAINS

				bus.				bus.				bus.				bus.
Bruce	......	......	10.5	136.5	1.5	25	......	242	.5	54.5	......	202	.5	1.5	......	154.5
Carleton	.5	.5	.5	193	1.5	47.5	......	246	2.5	75	......	216	......	......	......	320
Haldimand	......	3.5	......	208	......	17	......	199	3.5	63	....	182	......	4.5	......	186
Hastings	1	2	.5	323.6	3.5	20	......	282	2	68	......	282	.5	.5	......	303.5
Kent	2.5	3	.5	190.6	5.5	17.5	.5	243	4.5	60	......	187	1	3.5	......	238
Middlesex	......	2.5	1	265.6	.5	26	......	232	1.5	53	......	200	......	......	......	250
Ontario	.5	.5	1	230.7	3.5	18.5	......	189.5	2	51.5	......	236.1	......	1.5	1	228
Peel	......	2.5	4	216.6	......	21.5	......	180	......	23	1.5	168	......	.5	1	169.8
Renfrew	......	1	.5	241	2.5	20	......	222	1.5	58	......	204	......	.5	......	216
Simcoe	......	.5	.5	84	1	26.5	.5	108	......	32	......	83	......	4.5	......	68
Welland	......	......	5	312	......	12.5	......	248	......	26	......	134	......	......	......	240

TABLE C—RURAL NEW YORKER (DOOLEY)

County.	Northern Ontario Percentage.			Old Ontario Percentage.				
	Leaf Roll	Mosaic	Black Leg	Yield.	Leaf Roll	Mosaic	Black Leg	Yield.
				bus.				bus.
Bruce	1.5	3	4	126	1	.5	....	132
Carleton	2	9	....	273	1	5.5	....	266.6
Haldimand	2	8	....	189	2	5.5	....	201
Hastings	2.5	7	....	282	2	6	....	201.6
Kent	3	6.5	.5	152.6	2.5	7	....	184
Middlesex	....	3	.5	333	....	4.5	....	317
Ontario	2	4.5	1.5	193.2	1.5	4	....	198.5
Peel	1	6.5	4	132	1	4	5.5	162.6
Renfrew	2	3.5	1.5	234	2.5	3	1	240
Simcoe	....	5	....	48	....	6	1.5	74.5
Welland	....	7.5	....	256	....	4.5	....	248

Herewith is given the average percentage of Leaf Roll, Mosaic and Black Leg together with the average yield of marketable potatoes of all plots calculated in bushels per acre of the results obtained during 1920:—

TABLE D.

	Irish Cobblers. Percentage				Green Mountains. Percentage.				Rural New Yorkers (Dooley) Percentage.			
	Leaf Roll.	Mosiac	Black Leg.	Yield.	Leaf Roll.	Mosaic	Black Leg.	Yield.	Leaf Roll.	Mosaic	Black Leg.	Yield.
Northern Ontario............	.27	1.8	.86	bus. 198.	.41	1.4	1.7	bu . 218.3	1.6	5.6	1.08	bus. 201.
Old Ontario, selected..........	3.0	.77	.45	201.1	1.8	22.8	.08	215.8	1.3	5.08	.66	202.3
Old Ontario, common.........	13.0	3.3	1.2	164.9	1.8	51.7	.12	189.2	....	....	....	....
Maritime....................	.77	.36	.409	210.1	.18	1.5	.18	215.7	....	....	....	....

From the foregoing, particular attention is directed to the comparative yields from Northern Ontario and Old Ontario selected seed. Very little difference is noted. But comparing Old Ontario, Selected and Common seed, the results point to the advantages of careful selection of seed by growers in Old Ontario, not only with Green Mountains but also with Irish Cobblers.

The average results of the demonstrations with Green Mountain and Irish Cobbler varieties for the last three years, are as follows:—

	Green Mountains.			Irish Cobblers.		
	Northern Ontario	Maritime	Old Ontario	Northern Ontario.	Maritime	Old Ontario
1918	174.9	141.3	168	154.7	148.8	122.8
1919	169.5	168.7	166	131.8	107.6	120.4
1920	218.3	215.7	215.8	198	210.1	201.1
3 years average.	187.6	175.2	183.3	161.5	155.1	148.1

These demonstrations, in each of the three years, have demonstrated the superiority of New Ontario, or Northern grown seed, over Old Ontario and in most cases over Maritime seed. The demonstrations will, however, be continued during 1921 with the object of securing still further information on seed potatoes from different sources, and diseases of the potato crop.

Corn Variety Tests.

Last year demonstrations were carried on by a few Agricultural Representatives with the standard varieties of corn for silage purposes and also with strains of these various varieties. The work was confined to certain areas in the Province which were fairly representative of a large section of the territory surrounding where the demonstrations were conducted. In view of the fact that the Corn Specialist was co-operating with this work, it was felt that they should be limited in order that a greater opportunity would be afforded him to visit the plots and secure some accurate information. We tried to get away from the plot scale and conduct the demonstrations under field conditions.

Accordingly, the following counties were linked up with this work:—Kent, Oxford (South), Wellington (North), Halton, Victoria, Northumberland, (South), Dundas and Carleton (North).

In all 16 plots comprised each demonstration. In the Dent varieties, there were three strains of Wisconsin No. 7; three strains of White Cap Yellow Dent; two strains of Golden Glow; two strains of Bailey and one of Minnesota No. 13; in the Flint varieties, there were two strains of each of Salzers, North Dakota and Longfellow and one of Gold Nugget.

Early in the year, the Corn Specialist resigned and no one person visited all the plots during the growing season to inspect the plots and make observations. In the fall, however, Mr. Frank Weaver of Tunerville, from the corn belt in South-western Ontario, visited the demonstration plots and took notes as to the uniformity of stand, average height of stalks and ears, character and height of leaves from the ground; state of maturity and other observations.

Some of the demonstrations proved a failure owing to weather conditions, destruction by crows, white grubs and animals. The green weight in all cases was not ascertained owing to early fall frosts, and also because of the fact that the Representatives were so tied up with School Fairs.

The observations made by the Corn Specialist, the inspector and the Agricultural Representatives may be summarized as follows:—"The latter strains of any of the varieties show larger tonnage but indicate late maturity. Some varieties grown have always shown earlier maturity, but there is a greater difference in strains than there is in varieties in point of maturity. It is also noted that Minnesota No. 13, although not a heavy yielder in tonnage of green fodder in comparison with some other dent varieties, is very early, which proves the possibility of Dents growing in a Northern district as they mature earlier. Flints from the standpoint of maturity are very little ahead of Dents in most districts and Gold Nugget is practically out of the question since it is as late as many of the late Dents and the seed is difficult to plant, owing to its size. Where the corn was planted thick, maturity was retarded as much as ten days and it showed little cobbing."

Sweet Clover Demonstrations

Demonstrations have been conducted in a number of Counties during the past few years with Sweet Clover as a crop particularly adapted to light sandy soil, although from reports it thrives on almost every type of soil. The Representative from Lennox and Addington reports that:—

"One farmer pastured 14 cows on five acres during the early part of the summer and the cows seemed to thrive and give excellent returns from this pasturage. Another large dairyman pastured 26 cows on eight acres of sweet clover from June 1st, to July 1st, and reports a gain of 150 lbs. of milk per day on the entire herd. He states that the sweet clover came in at a time when most needed and considers this crop a very valuable one from the standpoint of pasture for dairy cows. After July 1st, he ceased pasturing the sweet clover and left it for seed and recently has threshed 70 bushels of seed from his eight acre field. The variety which is most popular in this County is the White Blossom Sweet Clover."

Experiment in the Liming of Soils.

Reports would indicate that farmers are keenly interested in the use of lime as a soil corrector and as an indirect fertilizer. Practically every Representative has farmers asking questions concerning the use of lime. Demonstrations have been conducted under field conditions, the following particulars being taken from the report of the Representative from Lennox and Addington:—

"In the Spring, I persuaded three progressive farmers in the distrinct of Hawley to conduct an experiment with lime on their farms. These men secured pulverized limestone from the Kingston Penitentiary, and applied it at the rate of two tons per acre. One farmer conducted the lime experiment on his corn crop. He limed a part of his corn field and the remainder he left unlimed. We observed a great difference in the crop of corn between the limed and unlimed parts of the field. The farmer and I estimated that the increase in the crop from the use of lime would be 25% greater than on the portion of the field which was left unlimed. Another farmer used lime on his potato crop. He had his potatoes planted along the line fence of his neighbour. The neighbour had potatoes planted on the other side of the line fence. It was an excellent demonstration to show the advantage that lime has on the soil. The farmer using the lime had an excellent crop of potatoes while his neighbour, who did not use lime, reported that his crop was almost a failure, and stated that he believed that the lime accounted for the difference in the yield of the two potato fields. This experiment proves that lime is beneficial to the soil and furthermore, that it could be applied with profit on most farms in the County which have been cropped for a number of years."

Poisoned Mixtures for Controlling Grasshoppers.

During the past season grasshoppers were quite numerous in certain sections of the Province; particularly was this true in sections which were left in grass for pasture. The crops were completely destroyed in some places and the farmers called for help. In Algoma and Muskoka particularly the Agricultural Representatives conducted some demonstrations to check the depredations of this pest.

Poisoned bait consisting of a mixture composed of bran, paris green and syrup in the following proportions was prepared: —

Bran	20 lbs.
Paris Green	¾ lbs.
Lemons	3.
Molasses	1 qt.
Water	2½ gal.

This mixture was made up the night before the application was applied broadcast over the fields at daybreak. Farmers in the affected area would gather and assist in the application. This poisoned bait was very effective and completely controlled the grasshoppers where it was applied.

Demonstrations such as these are very practical and mean dollars and cents to the farmers in saving their crops.

Sunflower for Silage.

In order to introduce sunflowers as an ensilage crop and to demonstrate the practicability of growing sunflowers in comparison with corn for silage, some demonstrations were conducted in the districts of Algoma and Muskoka. In Algoma, two farmers who had silos grew an acre of sunflowers alongside of their corn crop. The sunflowers yielded from 10 to 15 tons whereas the corn only yielded 7 to 8 tons per acre. The Representative from Muskoka also stated that the sunflowers outyielded corn but neither one could report as to its feeding value when ensiled. Particulars of its feeding value will be reserved for a future report.

Sheep Dipping Demonstrations.

In co-operation with the Live Stock Branch of the Dominion Department of Agriculture, a few of the Agricultural Representatives conducted demonstrations in the dipping of sheep and in the docking and castrating of lambs.

The dipping demonstrations were held in the more northerly counties of the Province and the demonstration outfit consisted of a steel galvanized tank 4′ deep by 8′ long on top, tapering at one end to 4′ long on the bottom. It was 20″ wide on top but tapered to 12″ wide on the bottom. This tank was sunk in a hole in the ground. It had a capacity of 175 gallons. Dipping platforms and hurdles completed the outfit.

The statement which follows gives the number of sheep which were dipped at the demonstrations in the various counties:—

Brant	1830
Dufferin	1200
Grey	4641
Norfolk	360
Wentworth	1102

Where a demonstration in dipping was held, farmers in the community were asked to bring their sheep and have them dipped free of cost. From 3 to 20 demonstrations were held in each of the counties enumerated above and from 25 to

100 farmers were in attendance at each demonstration. Considerable interest was aroused amongst sheep men, and, as a result of the demonstrations, one of the Junior Farmer Improvement Associations in Grey County purchased an outfit in order to dip the sheep in their community. In Brant County, a sheep club has come into being and arrangements are being made to dip practically all the sheep in the County. These dipping demonstrations are being followed up with the object of getting the farmers in a certain district or community to undertake this work themselves.

Hen Culling in West Zorra Township, Oxford County

The Agricultural Representative, in co-operation with the Poultry Breeding Station, Egg Circle and Farmers' Clubs in the Embro District, Oxford County, aroused considerable interest in the production of better poultry. A campaign was inaugurated to cull the hens in the farmers' poultry flocks in the Township of West Zorra. There are eight concession lines in the Township and one man was selected to do the culling on each of these lines. The culling was done during the last week in July and, preparatory to commencing the work, Professor W. R. Graham of the Poultry Department of the Ontario Agricultural College, gave the men, who were selected to do the culling, instructions, together with a practical demonstration in picking the non-producers from the flocks.

In all 116 flocks or practically ¼ of the flocks in the Township were culled which resulted in the following classification:—

Good hens.	3,857
Medium hens,	768
Culls,	2,550
With tuberculosis,	19

The cullers were paid 50c. per hour for their time and a charge of 3c. per bird was made to cover the bare cost of the campaign.

By special arrangements with the United Farmers' Co-operative Co. the cull hens were shipped alive to the New York market where they brought 27c. per lb. for the light hens, and 30c. per lb. for those weighing over 5 lbs. After paying all expenses, the Farmers' Club had $13.24 to the good on the transaction.

The Representative reports that shortly after the campaign, applications were received to have the work undertaken in several other townships next year. The good results of the campaign can best be summed up, in the opinion of the manager of the Embro Egg Circle, that even though 2,500 cull hens were removed from the flocks of over one hundred farmers, no appreciable difference could be noted in the number of eggs shipped by the Circle.

Other Practical Demonstrations.

In addition to the demonstration and experimental work mentioned, Agricultural Representatives have conducted demonstrations in the pruning and spraying of fruit trees; spraying potatoes and mustard; control of Smut in grain; culling poultry flocks and testing milk. Experiments have also been carried out with fertilizers on various crops: testing varieties of oats suitable to Northern Ontario soils and climatic conditions; and testing Soy Beans and Sweet Clover as an Ensilage Crop.

Drainage Surveys and Demonstrations.

In some Counties of the Province, Agricultural Representatives are called upon quite frequently to make drainage surveys for farmers wishing to tile drain their land.

In many cases elevations are taken over the field requiring to be drained and a map showing the depth and distance apart of the drains, the grade or fall every hundred feet, the number of tile necessary and the approximate cost is given to the farmer. Occasionally particulars are required for a single drain and in this case a profile is made for the guidance of the ditcher.

The statistics which follow show the extent of this work:—

County.	No. of Surveys Made.	Acreage Surveyed.	No. of Profiles Made.
Brant	5	103	3
Bruce	19	600	8
Dufferin	4	20	...
Dundas	1	...	...
Elgin	32	615	42
Essex	6	230	6
Grenville	1	...	...
Glengarry	2	24	1
Grey	2	160	2
Halton	5	319	...
Hastings	11	38	...
Huron	8	430	3
Kent	15	537	...
Lambton	18	1265	...
Lanark	3	500	3
Leeds	3	430	...
Lennox and Addington	4	120	2
Lincoln	7	201	...
Middlesex	20	750	24
Norfolk	5	94	...
Ontario	3	124	...
Oxford	6	...	5
Peel	5	150	...
Peterborough	7	42	6
Prince Edward	5	100	4
Renfrew	4	...	4
Simcoe	2	135	...
Victoria	...	250	10
Waterloo	1	228	...
Welland	3	100	5
Wellington	16	64	14
York	9	320	4
Total	232	7,949	146

Live Stock Breeders' Clubs.

The development and advancement of the live stock industry throughout the Province is evidenced by the number of Live Stock Breeders' Clubs which the Agricultural Representatives are called upon to assist in organizing each year. Horse breeders are realizing the value of using nothing but the best sires and are organizing for the purpose of taking advantage of the Federal Aid to horse breeders, which has for its object the introduction of better sires. Federal aid is given to horse breeders' clubs, only where sires are used which are approved by Federal officials. The various cattle Clubs have been organized for the purpose of promoting the respective breeds by holding consignment sales for the distribution of pure bred stock, by carrying on advertising campaigns and by holding educational meetings. These Clubs have been instrumental in distributing foundation stock for many pure bred herds where grades were previously kept.

Breeders' Clubs were organized during 1920 as follows:—

Brant—Brant Sheep Breeders' Club.
Dufferin—Dufferin Live Stock Breeders' Club.
Durham—Port Hope Horse Breeders' Club, Blackstock Horse Breeders' Club.
Kent—Eberts Horse Breeders' Club, Peninsular Live Stock Breeders' Association.
Lanark—Lanark Shorthorn Breeders' Club.
Norfolk—Norfolk Sheep Breeders' Club.
Waterloo—Galt Horse Breeders' Club.
Wentworth—Wentworth Clydesdale Club. Wentworth Sheep Breeders' Club.

Scrub Bull Campaign.

The Campaign for the improvement of Ontario's live stock, by the elimination of the scrub sires, which was undertaken in 1919, has been continued by the Agricultural Representatives, co-operating with the Live Stock Branch of the Department of Agriculture. The census taken in 1919, which showed that forty-five per cent. of the bulls used were grades, has been followed up in most of the counties in an endeavor to have this information as complete and accurate as possible. The previous lists were revised and returned to prominent farmers for further additions and corrections.

Meetings in connection with the Scrub Bull Campaign have also been held in many of the Counties and this live stock improvement work has been kept continually before the farmers with the result that fairly satisfactory progress is being made. This Campaign is one that cannot be rushed, and the immediate elimination of scrub sires on a large scale is not to be expected. The Agricultural Representatives, however, in almost every County report that a certain number of scrub sires have been replaced by pure-breds. Owing to the difficulty in getting farmers to report, it is impossible to give accurate information as to the advancement being made.

In a number of Counties the Agricultural Representatives, with the assistance of the Live Stock Branch, have carried out a personal and concentrated campaign with the result that in these counties considerable progress has been made. In Huron County scrub bulls were completely eliminated from one township, and in other counties a considerable number of scrubs were disposed of by conducting an active personal canvass and then conducting pure bred bull scales or bull exchanges as a means of assisting farmers, who had disposed of scrub sires, in securing good pure breds to head their herds. Indirect information often comes to the Agricultural Representative of the replacing of a scrub by a pure-bred bull, but the direct information is hard to obtain, as scrub bull owners are usually not anxious to advertise that fact.

Soldiers' Settlement Work.

The Agricultural Representatives did a great deal of work, during the year 1919, in assisting soldier settlers and the Soldiers' Settlement Board in connection with establishing returned veterans on the land, but this work during the past year has decreased very materially due to the falling off in the number of returned men applying for assistance and the extension of the staff and offices of the Soldiers' Settlement Board. The Representatives have, however, continued to assist the soldier settlers whenever possible by visiting and assisting men already established on the land and by giving information to returned men intending to take up land. They have also assisted the Soldiers' Settlement Board in establishing soldier settlers by submitting confidential reports, filling out information forms, vouching for farmers given as references by applicants, and aiding applicants in filling in applications for loans.

During the past year 3035 applicants interviewed the Agricultural Representatives regarding information about Soldier Settlement Work; 1643 confidential reports were made by the Agricultural Representatives to the Soldier Settlement Board; 872 preliminary farm description forms were filled out; 582 Loan forms were filled out in connection with settling soldiers on the land and 59 in-training settlers were visited and encouraged in their work. All told the Representatives visited 489 established settlers and gave them practical information and advice.

Wide Range of Problems

The special phases of Representative work, already referred to, do not by any means represent all their activities. As in former years much practical assistance and direction were rendered to all organizations connected with the rural communities, whether these organizations be for the purpose of purchasing or marketing staple goods co-operatively, or agricultural and improvement associations which have for their object the betterment of conditions on the farm.

Assistance is given the Fall Fair Boards in the revision of their Prize Lists, in staging an educational exhibit, supervising classes for school children and in conducting judging competitions at the Fall Fairs.

In connection with the marketing of wool co-operatively, demonstrations are given in the shearing of sheep and the proper way in which to tie up the fleece. Sacks and twine are usually distributed from the Representative's office to farmers shipping their wool to the Grading Station at Guelph.

Special meetings are held as occasion demands, and a series of meetings are arranged through the Boards of Agriculture and Farmers' Clubs. Short Courses in Stock Judging continue to be a popular feature of extension work in some Counties.

The Representative's offices are used more or less as clearing houses for the farm help situation. They are kept in touch with the Labour Bureaux, and farmers generally apply to the Agricultural Representative when help is required.

Representatives are called upon from time to time to test samples of milk and cream, make germination tests of seed, examine clover and grass seed for impurities and identify and suggest control measures for weeds, insects and fungus diseases.

Considerable time is spent in the preparation of articles for the press, addresses, attending to correspondence, making out reports, keeping records and giving information to farmers and others who visit the office. Bulletins are distributed and farm papers are kept on file in the offices. The office is used as a Board Room for meetings of all farmers' organizations such as the Agricultural Society, Horticultural Society, Women's Institute, Plowmen's, Fruit Growers, Vegetable Growers and Junior Farmer Improvement Associations, Breeders' Clubs and Co-operative organizations. The Representative invariably is in attendance at all such meetings and is kept in pretty close touch with agricultural conditions throughout the County or district.

CO-OPERATION AND MARKETS BRANCH.

Since 1916, Co-operative Companies, as such, have been incorporated under Part XI. A. of The Ontario Companies Act. Previously no provision was made to differentiate Co-operative Companies or Associations from other kinds of Companies. There were, however, a certain number of Fruit Associations, Creameries, Cheese Factories and other Associations which were to all intents and purposes Co-operative in their nature.

Since the enactment of Part XI. A., Co-operative Companies have been incorporated as follows:—

1917	14
1918	32
1919	59
1920	45
Total	150

Included in the above are some eight Co-operative retail stores affiliated with the Co-operative Union of Canada.

The Act provides that the provisions making a corporation a co-operative one may be either directly in the Letters Patent or in the By-laws. The great majority of the Companies choose the latter method and By-laws are submitted to the Provincial Secretary's Department to determine whether the organization in entitled to be called co-operative. These By-laws are submitted to this Branch for advice as to their conformity with the Act. The Branch also supplies a draft set of By-laws to Companies or Associations taking out Letters Patent, and gives other assistance in connection with obtaining Letters Patent.

A considerable number of Co-operative Associations were formed with Non-Share capital. The business experiences of some of these organizations have brought about the desirability, for their particular business, of the Share method of raising capital which necessitates changing the Letters Patent from a Non-Share Association to a Co-operative Share Company, and assistance is being given such Associations in making the necessary changes.

Business Methods.

The Department has realized for some time that practical assistance could be given to Co-operative Associations in the matter of bookkeeping and business methods, and the services of the Department were offered in this connection. A large number of requests for such assistance have been received, not only from Co-operative Associations but from unincorporated Farmers' Clubs. An officer of the Branch has visited these organizations, has inquired into their business methods and systems of records, and advised as to changes and improvements. In each case a sample system of bookkeeping has been recommended suitable for the business being undertaken. Perhaps no greater service could be rendered to young organizations than in this particular regard, and the work is being prosecuted as quickly as circumstances will allow. Material benefits have resulted to the organizations visited. The officer has, in some cases, assisted the auditors in making a satisfactory audit of the books.

Farmers' Clubs.

Farmers' Clubs in the Province number approximately 1500. The great majority of these Clubs are unincorporated and each is carrying on business to a smaller or larger degree. Except in Live Stock shipping, the bulk of this business is that of buying supplies co-operatively. The Clubs do business mainly through the United Farmers' Co-operative Company, which acts as a wholesale house, commission firm, etc. In order to facilitate the business of the Clubs, this Province-wide Company has now departments as follows:—Live Stock, Egg and Poultry, Seed, Commission, Creamery, and Stores. The business of the Company during the year aggregated upwards of $20,000,000.

It will be noted that some of these departments have to do with the marketing of farm products and all branches of the business recently added are of this nature. During the last few years there is an increasing tendency on the part of Farmers' Clubs to undertake marketing—i.e. taking over the local elevator, putting in weigh scales, shipping eggs, and other marketing activities. This type of business has led many of the Clubs to seek incorporation as Co-operative Companies, in order to give them the power to hold property and create a sound business.

The Co-operative shipping of Live Stock has increased in volume and importance. Between 350 and 400 local shipping clubs are in existence. The bulk of their shipments is marketed through the Live Stock Department of the United Farmers' Co-operative Company, which has a seat on the Live Stock Exchange at Toronto and a branch at the East End Market at Montreal. During the year approximately $11,000,000.00 worth of Live Stock was marketed through this Company at Toronto. Co-operative shipments were also made through other Commission firms and directly to the abattoirs on the f. o. b. basis.

Seed Cleaning Plants and Potato Warehouses.

Under the Co-operative Marketing Loan Act passed by the Legislature in 1919, a number of plants are almost completed and nine Associations are considering installing machinery as soon as possible, although to date no loans have been granted. In some instances these Seed Cleaning Plants are in connection with the local elevator business which has been taken over by the producers' organization. It should be mentioned in this connection that there are already a small number of such plants now in operation without government assistance. One of these is at Cottam, in Essex County, one at Emo, in the Rainy River District, and one at Oxdrift, in Kenora. The latter has been in operation a number of years and is used mainly for cleaning clover seed, for which the district is noted.

Blue prints have been prepared for seed cleaning plants. These plans provide for three different sizes of plants and are available to organizations taking advantage of the Act.

In connection with the above, provision is also made to assist in the erection of Potato Warehouses. As with Seed Houses, blue prints have been prepared of suitable Potato Warehouses and are available. Only one organization has started to build a Potato Warehouse.

Community Halls

Under the Community Halls Act, 1920, the following municipalities have applied for assistance:—

TOWNSHIP	COUNTY	PLACE
South Norwich	Oxford	Otterville
Caradoc	Middlesex	Mt. Brydges
Douro	Peterboro	Lakefield
Morris	Huron	Blyth
Dunwich	Elgin	Dutton

Township	County	Place
Binbrook	Wentworth	Binbrook
Ross	Renfrew	Cobden
Euphrasia	Grey	Kimberley
Dunwich	Elgin	Wallacetown
Dawn	Lambton	Florence
Oxford	Oxford	Currie's Crossing
Adelaide	Middlesex	Crathie

Of the above Halls, those at Cobden, Binbrook and Lakefield have been completed and grants paid. Others are in course of completion. Other centres visited in connection with Community Halls include:—

Alnwick	Northumberland	Roseneath
Oxford	Oxford	Beachville
Orford	Kent	Muirkirk
Dunwich	Elgin	Cowal
Ancaster	Wentworth	Mt. Hope
Huntley	Carleton	Carp
Humberstone	Welland	Humberstone
E. Flamboro	Wentworth	Carlisle
Hullett	Huron	Londesboro

Much interest has been aroused in connection with the Community Hall and Athletic Field movement, and during the year considerable time has been spent in visiting communities and explaining the Act. The community activities expended during the war have been continued in many sections in community betterment plans, and, if the present interest in the subject continues, a large proportion of the rural sections will be adequately equipped for social activities. Where the Hall has been completed and is in operation, the resulting benefits are so marked, that surrounding municipalities are quickly following the lead. In this connection athletic accommodations are not overlooked and the young people have at their disposal accommodation for foot-ball, baseball, hockey, tennis, and other athletics which previously were largely lacking in the open country.

Chicago Exhibition

The second International Grain & Hay Show was held at Chicago, November 27th, to December 4th., in connection with the International Live Stock Exhibition. Arrangements were made, through this Branch, for the Province of Ontario to have a display exhibit. Space for this exhibit was cancelled by the Show authorities at a late hour. Consequently efforts were made for the Province to be representatives in the competitive classes. Thirty-four entries were made and among the prizes obtained were:—

Flint Corn (Open to all U. S. and Canada)

A. S. Campbell & Son, Blenheim	1st prize
R. J. Johnston, Chatham	2nd "
Stewart Campbell, Blenheim	3rd "
A. S. Maynard & Son, Chatham	6th "
Albert Gilbert, Simcoe	7th "

Barley, Six-Rowed (Open to all U. S. and Canada)

A. E. Browning, Oxdrift	13th "
Andrew Schmidt, Mildmay	17th "

Oats (Region 2—100 entries)

B. R. Cohoe, South Woodslee	1st "
A. E. Browning, Oxdrift	3rd "
Andrew Schmidt, Mildmay	8th "

Red Clover (Open to all U. S. and Canada)
J. S. Corner, Oxdrift .... 9th prize

Alsike Clover (Open to all U. S. and Canada)
J. S. Corner, Oxdrift .... 4th "

Sweet Clover (Open to all U. S. and Canada)
J. H. Schnurr, Walkerton .... 2nd "

Sugar Beets

There are three factories in Ontario manufacturing sugar from beets. For these factories a total of about 30,000 acres is grown, producing on an average nine tons per acre. The sugar beet growers were organized in Ontario in 1916. This organization acts as the agent of its members in endeavoring to arrange a satisfactory contract between the growers and the manufacturers, and has been of material assistance to the grower in adjusting prices each year paid to the grower.

Tobacco

In 1920, Ontario grew a grand total, including all varieties, of 21,691,100 pounds of tobacco. Of this, the one variety, White Burley, amounted to 19,432,000 pounds. Flue-cured or bright tobacco totalled 2,259,100 pounds These figures are much in excess of any previous year, and brought into prominence the problem of marketing the crop. In an endeavour to meet the situation a Co-operative Company of growers was formed, (The Canadian Tobacco Growers Co-operative Company, Limited), with an authorized capital of $250,000. The members of the Company are required to sign an agreement to sell their tobacco through the Company. During the summer this Company purchased a factory building at the town of Kingsville, in Essex County, and installed a large drier. At the time of harvesting the crop, graders to the number of over one hundred were employed, and each member's tobacco graded and processed for sale. The Company is evidently receiving the support of the growers as the membership is constantly increasing and extends as far east as Norfolk County. Through this Company the growers hope to be able to market their crops much more advantageously than by individual sale of ungraded tobacco. The crop is now being processed.

Egg Circles.

Egg Marketing Circles operating at the present time number forty-four, situated at the following places:—

Athens
Balderson
Brooksdale
Burgoyne
Burgessville
Cambray
Cavan
Dobbinton
Domville
Easton's Corners
Embro
English Line
Fallbrook
Hammond
Harper
Havelock
Hepworth
Hopetown
Millbrook
McDonald's Corners
Newbliss
Norval
Perth
Perth-upon-Tay
Pontypool
Smith's Falls
South Monaghan
Spencerville
Springbrook
Tara
Watson's Corners
Welcome
Wellman's Corners
Woodstock
Clayton
Almonte

Lansdowne
Lyndhurst
Merrickville
Middleville
Carleton Place
Plantagenet
Renfrew County Co-operative Ltd
Lanark Co-operative Ltd, Perth

Some of the above are grouped into a larger organization. For instance, assistance has been given during the year to the formation of the Renfrew County Co-operative, Limited, for the purpose of egg marketing for the Circles in that County. Similarly, The Lanark Co-operative Ltd., was organized, including nine Circles. The Dundas Co-operative Association, consisting of a number of Circles in Dundas, was taken over by the United Farmers' Co-operative Company and operated as a branch of that Company. Meetings have been held in Oxford County with the object of uniting the Egg Circles.

A stimulus has been given to co-operative egg marketing through the establishment of an Egg and Poultry Department of the United Farmers' Co-operative Company. Not only the Egg Circles but Farmers' Clubs, and the local stores owned by the Company, are shipping eggs co-operatively through this Company, the growers being paid for the eggs on the graded or quality basis. The Company is exporting Circle eggs as well as selling in the domestic markets.

Miscellaneous.

In connection with the work of the Ontario Potato Council, this Branch assists growers of certified seed in marketing their crop, by putting them in touch with prospective purchasers. Visits have been made to Northern Ontario with a view to assisting in organizing the growers so that the shipments of seed potatoes from Northern Ontario can be more easily handled.

Officers of the Branch assisted at the various Winter Courses under the Agricultural Representatives, lectures being given at these Courses on "Marketing" and "Co-operative Organizations." Addresses and lectures on these subjects have also been given at the Vegetable Growers' Short Courses at the Ontario Agricultural College and at various Conventions, and to Farmers' Clubs, and other organizations over the Province.

It should be noted that during the last year, beside there being an increase in the amount of co-operative business in the Province, there is also greater efficiency in the business methods of the individual organizations. As an example, one organization starting business in 1915 made a turnover that year of $53,329 at a cost of 11 per cent, of their turnover. In 1920 their business had amounted to about $800,000 at a cost of only 3 per cent. on their turnover. That is, to market about $600,000 of perishable and semi-perishable products, the net costs were only about $1,553, the balance of the expenses of the business being made through the sale of supplies to members and others. Other organizations might be cited which show a tendency on the part of co-operators to build up sound business concerns. During the year also, a number of organizations have been incorporated in which the members contract to deliver their produce for sale through the organizations; heretofore it has been more difficult to have such contracts signed.

No authoritative statistics are available as to the total amount of co-operative business being carried on in the Province, as in other Provinces, where the Co-operatives are required to make annual returns. That the co-operative spirit has permeated the Province is, however, abundantly evident and the usefulness of those organizations, which are efficiently conducted, in meeting the after-war conditions of deflation in prices, now becoming evident, leaves little doubt as to the permanency of the co-operative system as applied to the marketing of farm products.

KEMPTVILLE AGRICULTURAL SCHOOL

The buildings, necessary to open the Kemptville Agricultural School to students desiring to avail themselves of the opportunity of securing practical instruction and training in agriculture, have been completed and also furnished with the most modern equipment available. Work was completed during the past summer on the Main School and the Farm Mechanics buildings. The Main School building is three stories, 120 ft. x 61 ft. and solid brick. It contains office accommodation for the staff, as well as class rooms and laboratories for instruction in Agriculture and Household Science. The Mechanics Building, 80 ft. x 50 ft. is brick veneered, and is arranged for demonstration and practice on gas engines, tractors, farm machinery, blacksmithing, including horse-shoeing, carpentry and cement work. These two buildings, with the Live Stock Pavilion, also containing the gymnasium, furnished excellent accommodation for conducting a two-year course in Agriculture, a course designed for young men and women who intend going back to the farm on completion of their studies. Three appointments have been made to the teching staff and others will be made as the Course progresses.

The School's Regular Course commenced 25th, with an attendance of twenty-two young farmers, an attendance which will be considerably increased when the winter term begins.

The following Short Courses were conducted at the School during the winter of 1920:—

Herdman's Course, (five weeks); Farm Power (two weeks); and Household Science (four weeks). There was an aggregate attendance at the three Courses of 358, and this would have been considerably increased but for an outbreak of small-pox and influenza during the progress of the Herdman's and Farm Power Courses.

Farm.

A three-year rotation is employed on the farm, and this, coupled with thorough cultivation and a most favorable season, resulted in excellent yields of all field crops except roots. All cereals grown on the farm were from First Generation Registered Seed, which will be cleaned ready for the seeder and sold at reasonable rates to farmers of Eastern Ontario in quantities sufficient to seed five acres. The varieties of grains used were Banner Oats, Arthur Peas, O.A.C. No. 21 Barley and Huron Wheat. Ensilage corns grown were of the following varieties:—Golden Flow, White Cap, Yellow Dent and Longfellow, the first-named variety giving best results during the past season. Sweet clover was again used as the main pasture crop for dairy cattle and, as in 1919, gave excellent results. That seeded in 1919 was pastured until June 25th, during the past season, and then left for seed. It was cut with a reaper with a minimum of shelling. Early pasturing prevented the plants from becoming unnecessarily tall and made them must more branching.. Giant White Mangel has given excellent results on the School farm. A mixture of 8 pounds red clover, 4 pounds alfalfa, 4 pounds timothy and 2 pounds alsike per acre gave best results as a hay crop during the past year. Alfalfa sown 22 pounds to the acre has given good results with practically no winter killing during the past two years. Ontario grown alfalfa seed is used exclusively.

A farm containing ninety acres was added to the two-hundred acre School farm last spring. A large house on this farm has been divided to make two comfortable houses for farm help.

Stock.

Good results have been secured during the past year with the herds and flocks on the farm. The increase in young stock has been encouraging. Many of the Holstein and Ayrshire cows and heifers are making creditable and profitable official yields, while the health of all School stock is excellent. The following table shows the production in the Dairy herd.

Name.	Age.	Yearly Production.
HOLSTEINS.		
Monklind Jenny Lind	12 years	18,451.73 lbs. R.O.P. 286 days. (Period unfinished.)
Francy Sylvia Teake	5 "	9,922.63 lbs. 304 days. (Period unfinished.)
Toitilla Rue	10 "	9,939.76 lbs. 269 days. (Period unfinished.)
Mercena Rue Lass	4 "	9,801.08 lbs. 304 days.
Juanita Teake	10 "	8,768.06 lbs.
Mature Herd Average		11,390.65 lbs.
Daisy Mercena Pontiac	2 "	14,857.82 lbs. R.O.P.
Margaret Pontiac Pride	3 "	14,104.94 lbs. R.O.P.
Jewel DeKol Segis	3 "	9,635.73 lbs.
Pontiac May Echo Walker	3 "	9,247.81 lbs. R.O.P. 268 days. (Period unfinished.)
Molly Rue Pontiac	2 "	7,848.16 lbs.
K. A. S. Boutsje Lass	2 "	6,391.53 lbs.
Junior Herd Average		10,396.66 lbs.
Herd Average		10,893.65 lbs.
AYRSHIRES.		
Lady Hopeful	5 "	13,307.12 lbs. R.O.P.
Sprucehurst Queen Nancy	7 "	8,870.75 lbs.
K. A. S. Patricia	3 "	7,330.52 lbs. R.O.P.
K. A. S. Alive	3 "	7,087.90 lbs. R.O.P.
K. A. S. Queen	3 "	6,992.35 lbs. R.O.P. 247 days. (Period unfinished.)
Herd Average		8,711.72 lbs.

VEGETABLE SPECIALIST

Three definite lines of work have been carried on during the year by the Vegetable Specialist in the interest of the commercial vegetable growers of the Province, viz: educational work, disease and insect control work, fertilizer experiments.

During the winter months Three Day Short Courses for vegetable growers were held at many of the special vegetable centres, being attended by from 25 to 40 growers, and subjects of special interest to the particular district taken up. Lectures were given at all the agricultural classes held by local representatives as well as many general and local vegetable gatherings. A short course in commercial vegetable growing was conducted at the Ontario Agricultural College as well as a series of lectures on the subject given to the fourth year students on the subject. In this way the latest and best information was brought to the attention of those most vitally concerned.

One of the most important problems of the commercial vegetable grower is the control of insects and diseases which threaten his crop or his profits. Much time was therefore given to this phase of the work, and the following results are reported by the Vegetable Specialist: .

> During the spring about 100 acres of early cabbage and cauliflower was looked after for the control of Cabbage Root Maggot and in all cases the work was successful. In no one case did we have less than 90% of a crop. This year has distinctly shown that this treatment is the only commercial method that will give satisfactory results in the control of this insect in commercial fields. A certain amount of work was done on Onion Maggot but as yet we have not succeeded in making this control as perfect as we would like as the adults did not appear until fairly late in the season and in many cases we were not notified of their presence until too late. However, next season we hope to be able to control this pest also. Celery Blight was not prevalent this year and did not give us much chance to work on the control of it by means of the dust spray. The Tarnished Plant Bug was nearly as destructive as usual; the Black Leaf "40" treatment has not proved quite as satisfactory as we would like but we hope next next to overcome the difficulties encountered. We hope to try out the use of Hydrated Lime blown into the heart of the plant. This has proved satisfactory in a small way. A small amount of Onion Thrip was present but did not do any amount of damage. We spent considerable time working on a machine to take care of this pest and also the Onion Blight which we hope to have a chance to demonstrate with next year. This machine will cover a strip of 45 rows on each side of the centre and so will save much destroying of the crop. Greenhouse Leaf Tier was also controlled in a number of floral establishments, using:—1 oz. Soluble Sulphur, 1 fluid oz. Black Leaf "40", 6 gallons water

Inasmuch as the commercial vegetable grower must secure large returns per acre from high-priced land, the question of maintaining soil fertility is a most vital one. This fact together with the increasing scarcity of manure, justified extensive experiments with commercial fertilizer. This work, as far as possible, was carried on in co-operation with the local branch of the Vegetable Growers' Association. Some definite results were secured but further work will be necessary. Applied on a wide variety of soils from sandy to heavy clay loam and in varied combinations, the best results were secured on soils containing the most humus. This again emphasizes the fact, well known to those who have given the subject any thought, that commercial fertilizers do not entirely take the place of barnyard manure but do their best work where there is plenty of humus in the soil either from manure or cover crops ploughed in. Full details of soils and fertilizer formulas have been given publicity among the vegetable growers at meetings and in reports. It may be sufficient here to note the standard commercial fertilizer formulas which seem to have given the best results on crops mentioned.

Celery	4-8-6	1000 lbs. per acre.
Cauliflower	4-8-6	1000 lbs. per acre.
Potatoes	4-8-6	1000 lbs. per acre.
Early Cabbage	6-14	1000 lbs. per acre.
Late Cabbage	5-10	1000 lbs. per acre.
Tomatoes	4-8-4 or 4-12-4	1000 lbs. per acre.
Onions	4-8-5	1000 lbs. per acre.
Melons	5-12	1000 lbs. per arre.
Corn	4-10-4	1000 lbs. per acre.
Beets	4-10-4	1000 lbs. per acre.
Lettuce	Sulphate of Ammonia	1000 lbs. per acre.

Potato Work.

With the resignation of the Field Crop Specialist early in the season, a portion of the work looking to the improvement of the potato crop, which had been developed extensively was transferred to the supervision of the vegetable specialist. This included particularly the work in connection with the standardization of varieties and control of disease. During the summer three inspectors were provided by the Government to work in connection with the Federal Division of Botany, for the inspection of potato fields in varius parts of the Province. Until July 1st these men were working in Southern Ontario; after July 1st they were sent, one to Sault Ste. Marie, one to Port Arthur and the other to Fort William, the one at Port Arthur taking care of the Kenora country and the one at Fort William the Rainy River country. In all 472 acres of potatoes were inspected in Northern Ontario, of which 256 were in Grade 1 and 128 in Grade 2. However, owing to the extreme percentage of Net Necrossis developing in the North Country this fall, but little certified seed was shipped out. The prevalence of a number of diseases in the North Country, the worst of which have been Rhizoctonia and Net Necrossis, has been very unfortunate and has cut down the amount of seed suitable for shipment very largely during the past season. An effort was made to get the growers in each section to do hill selection work in order to improve the standard, but up to the present the potato most grown in the North Country has been Green Mountain, but the demand for this potato has never been very great in the Southern part of the Province. The demand this fall has been almost entirely for Irish Cobbler which so far in most sections of the North has never been grown to any extent. This necessarily interferes with the marketing of New Ontario seed as rapidly as might be desired.

MONTEITH DEMONSTRATION FARM

The year has been an eventful one for the Demonstration Farm. The large building, built as a school for Soldiers and Sailors, was turned over to the Department of Education and is now a High School for the District.

The Farm cattle were found to be affected with tuberculosis and early in the year taken to Toronto and slaughtered. This was a great setback to the live stock of the Farm and to an extent to the live stock of the District. A new young herd of Shorthorns was purchased that arrived early in August that stood the triple test in October and can be confidently reported free from disease.

The summer was unusually dry and the hay crop light. Excellent weather prevailed throughout the summer and fall for harvesting all grain crops, and good crops of ensilage and turnips were obtained.

The Annual Excursion on the 6th of August brought three thousand people to the Farm. Addresses by the Prime Minister and many others were of unusual interest.

LAND CLEARING. About 20 acres of land was cleared and stumped during the year. The method followed was to use dynamite to blow out solid stumps and pull with a team those that could be removed in this way, pile the stumps and logs by hand and burn the piles. Most of the roots pulled out so that little difficulty was experienced from them in plowing the ground.

FARM CROPS: About sixty acres of hay gave a yield of a little over a ton to the acre. The hay is of excellent quality, though the yield was light on account of the dry season. The grain crops are not threshed at date of reporting but the acreage devoted to grain was small and the yields will be only fair.

SILAGE CROP: Encouraged by results of experiments in former years, six acres of sunflowers were grown as a field crop for silage. Although the season was dry these gave an estimated yield of about 18 tons of green silage to the acre.

TURNIPS: The best Farm crop grown this year was the turnips, they were rather late in being sown, but gave a yield of about six hundred bushels to the acre. We strongly advise settlers in the North to grow turnips for their stock. They are one of the surest crops and are not easily affected by summer or early fall frosts, and can always be harvested some way, no matter how adverse the weather is in the fall.

POTATOES: An acre and a half of potatoes was grown and gave a yield of about 100 bags to the acre.

EXPERIMENTAL WORKS: Quite a number of Experimental or Demonstration plots were sown to different varieties of field and garden crops. These proved of great interest to visitors to the Farm and were of considerable experimental and demonstration value to settlers. Early Britain peas ripened a week earlier than any other variety and promise to be a good kind for the North. The Sweet Clover plots made an excellent showing and, if they winter well, sweet clover would appear to be worth sowing rather extensively under field conditions next year.

The sunflower plots showed the behavior of sunflowers planted different distances apart, but experiments would need to be conducted over a number of years to enable one to say just what is the proper distance apart to plant them. Those grown far apart produce a stout stalk with larger leaves and head, while those grown close together produce a finer stalk with smaller leaves and head, but the difference in yields per acre does not appear to be very great between those planted far apart and those close together.

Live Stock. Our present herd of cattle consists of thirteen purebred cows with calves at their sides from five months to a few days old. One cow that lost her calf at birth, and another one that is not due to calve until next summer, these with the bull, make a good foundation from which to build the Farm herd and supply stock to settlers.

Sheep. No kind of live stock has done so well at the Monteith Farm as sheep. Our flock of sixty purebred Shropshires we consider the best in Northern Ontario and one of the best in Ontario. The ewe lambs were kept to increase the size of the Farm flock. Northern Ontario seems well adapted to sheep raising and we strongly advise settlers in areas free from danger by wolves or dogs to keep at least a few sheep. 13 pure-bred rams, raised on the Farm were distributed this year.

Pigs. There seems to be quite a demand for young pigs in the spring of the year to be fed during the summer and killed in the fall. The Farm this year sold 17 sows and 7 boars to settlers and, no doubt, a great many of them were used for this purpose, and in the future we will endeavour to supply those who wish pigs for breeding rather than those who wish them to kill for meat in the fall. In many sections there is not enough grain grown to encourage the settlers to keep pigs over winter.

Hens. The flock of forty hens brought a revenue to the Farm of over $100.00 and has been increased to 80 as well. Some changes are needed to provide a larger poultry house if a flock of any size is to be kept. There seems to be quite a demand among settlers for purebred roosters.

Horses. Throughout the summer six horses were kept. The Matheson Farm and land clearing required a good deal of team work in addition to the regular farm work. This fall we reduced our horses to three and hire one team out by the day during the winter.

The Hydro Power Plant. This plant until this fall had been out of repair with a broken wheel for a considerable time, but early in October a new wheel was installed and the plant put in operation. From it the town, the Farm and the High School are supplied with light, and the Farm and the School with electric power. This plant requires an additional man to care for it and the pumping station.

COLONIZATION AND IMMIGRATION

During the year this branch which for the past few years has been under the Department of Lands, Forests and Mines was transferred to this department for administrative purposes.

As the work of this branch has to do mainly with bringing in competent farm labor, farm investors and domestic servants it became disorganized during the war and had to be practically re-organized during the past year. While immigrants began arriving early in the Spring, transportation facilities were still congested and rates high. In all, 1957 laborers were placed by the local office during the season and all were reported to be an excellent type. A number brought capital with the intention of purchasing farms but they were invariably urged to get Ontario experience before definitely taking up land. The number of laborers included a number of married men and these were placed with the farmers who appreciate the value of steady year-round help.

In addition to the placing of immigrants, this office supplies information on the agricultural resources of both old and new Ontario. That there is a constant demand for information of this character is shown by the fact that the letters sent out numbered 11,547 and upwards of 30,000 pieces of literature and maps were distributed.

Work in Great Britain

During the year the personnel and scope of the work in the British Isles has been re-organized with a view to concentrating it more directly and energetically on the problem of peopling Ontario lands. It is gratifying to report that good results are already being secured. Never before have so many enquiries been received with reference to the province of Ontario. By actual count the inward letters numbered 57,940 an average of 250 for each working day, and going up to 400 some days. This compares with 27,429 in 1913, the previous busiest year in the record of the office. The number of individuals with whom the office was in correspondence was 38,353 while 10,785 were personally interviewed by the staff. In all these cases emphasis was placed on the fact that only those with farm experience, and those willing to take up domestic service, should find openings in Ontario. Of these several thousand went forward during the year and others made plans for next Spring. Many of the prospective settlers had varying amounts of capital with which to purchase land. As far as the records of the office go this capital aggregated £134,277, but this is necessarily incomplete.

The great majority of the men going to Ontario just now are men who have seen service in the British army. After the war the British Government offered free passage to any who had served in the army or navy who desired to emigrate to any of the overseas dominions. This offer included free passages for the families where the men were married. An overseas settlement office was opened as a branch of the British Government. The Ontario office has kept in close touch with this work in the hope that it might be mutually beneficial to the men and to the Province.

While the major part of the work must always be devoted to agricultural matters, it is noted that there is an increasing number of enquiries on other Ontario subjects. Information in frequently sought in regard to lumbering, mining, and pulp industries. Business firms seek the names of Ontario firms in lines of goods which they import. Solicitors apply for farms in connection with succession duties of persons who hold property in Ontario. Importers of food stuffs seek information as to producers or exporters in Ontario. Special attention has been given to the effort of co-operative organizations in the British Isles to establish business relations with co-operative organizations in Ontario. On all these, and many other subjects, up to date information has been given and considerable service rendered in promoting the best interests of the Province.

All the time Ontario and its resources is being kept prominently before the British public. Newspaper men are daily callers at the office and some advertising space is used. For the first time in the history of the work the motion picture has been utilized. Arrangements were made for the Ontario Government Motion Picture Bureau to send over five different films picturing Ontario's beauties and resources. Of these 40 copies were made and the five subjects appear in 80 different theatres and come to the notice of quite four million people. Aside from this, frequent displays are made of Ontario products—minerals, grasses, grains, honey, cheese, roots, apples and so forth. Displays are made at some of the larger exhibitions and material is loaned to shipping agents throughout the country for window exhibits for it is realized that actual specimens of Ontario products is one of the most effective forms of publicity.

Ontario Department of Agriculture

FORTY-SIXTH ANNUAL REPORT

OF THE

Ontario Agricultural College

AND

Experimental Farm

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO
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1921

Printed by
THE RYERSON PRESS.

To His Honour LIONEL H. CLARKE, Esq.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present herewith for your consideration, the Forty-sixth Annual Report of the Ontario Agricultural College and Experimental Farm, for 1920.

Respectfully submitted,

MANNING W. DOHERTY,

Minister of Agriculture.

Toronto, 1921.

ONTARIO AGRICULTURAL COLLEGE

AND EXPERIMENTAL FARM

1920

To the Honourable the Minister of Agriculture:

Sir,—I beg to submit herewith my first report as President of the Ontario Agricultural College.

Upon the resignation of G. C. Creelman, B.S.A., LL.D. from the presidency to accept the position of Agent-General for Ontario, I was appointed to the presidency, and assumed duties on July 1st, 1920.

It is a matter of great satisfaction to me to be recalled to the college where I had spent twenty-two years as teacher. The five years spent in Manitoba as head of the Agricultural College there were full of interest and opportunity.

The kind reception given to me by my old colleagues of the Ontario Agricultural College, and the equally hearty greetings of old students whom I had taught during those twenty-two years, have been highly gratifying. Harmony and good feeling prevail here, good feeling for my predecessor who had so ably filled his office for sixteen years, and a marked willingness to support my efforts in maintaining the good work and the good name of the college.

I regret to record the resignation of Miss Watson as Director of Macdonald Institute. After administering the affairs of the Institute since its inception in 1903 with conspicuous success, Miss Watson wished to retire. Miss Olive Cruikshank, B.A., who has had several years of experience as administrative dietitian in Regina College and in Manitoba Agricultural College, has been appointed as Director of the Institute.

New Courses—Matriculation

This year a change has been made in the terms of admission to the four year course leading to the Degree of Bachelor of Science in Agriculture. Formerly all students in the regular course took the same work in the first two years, without entrance requirements. Admission to the third year was granted upon the standing of students in their second year. The results from this method of selection have been good. Graduates of the college are found filling ably the highest positions of responsibility in academic and technical fields—teachers, investigators, administrators, presidents of colleges and universities, and scientific farmers. If it were not that the degree, granted without regular matriculation requirements, was somewhat discounted according to academic opinion, and that our graduates found some difficulty in securing admission to other colleges for graduate studies, a change would perhaps not have been advisable. But for these and other reasons, matriculation is now required of students entering upon the degree course. Incidental to that change, the two-year and the four-year courses are now entirely separated. The former is now more exactly adapted than formerly to the requirements of those who intend to farm, and the latter in the first two years aims to give instruction in the sciences upon which the technical instruction of the last two years are founded.

New Buildings

The year is marked by the opening of two important additions to the college buildings. The Apiary Building provides much needed accommodation for instruction and investigation in the rapidly developing industry of bee-keeping, and also for the extension work of the Provincial Apiarist,—the latter office being held by the Professor of Apiculture.

A handsome building in stone has been erected to supplement the dormitory accommodations and has been named Mills Hall, in honor of Dr. James Mills who was President of the college from 1879 to 1904. The new dormitory consists of three floors, with completely equipped conveniences on each floor, and a large common room on the ground floor. With this addition the college residences can now accommodate five hundred students, two hundred and twenty in the main building, one hundred and thirty in Mills Hall, and one hundred and fifty in the womens' residence, Macdonald Hall.

The College is indebted to you for your efforts in securing generous appropriations for maintenance of all its activities,—resident teaching, research, and extension. The province is very large, and requires large resources for extension work if all the needs are to be met both in the newer and the older parts of the province. As time goes on, the agriculture practised in the province becomes more varied and specialized, and this development creates new problems in plant and animal industry. It is gratifying to note that the farmers are relying more and more on the college to solve these problems. The solution of problems in plant and animal industry, looking to control of diseases and pests, and to securing improved strains and varieties, requires frequently long-continued investigation and experiment by men scientifically trained. These enterprises—extension and research, are limited only by the resources at our disposal, and whatever resources are left over from the resident teaching may in any year be applied to advantage in these directions.

Appended is a brief summary of some of the work of different departments of the college.

Respectfully submitted

J. B REYNOLDS.

ONTARIO AGRICULTURAL COLLEGE

ATTENDANCE

The following are the figures in each course held throughout the year:—

Figures for the general course include students of Winter Term and new students of Fall Term.

General Course	741	
Specialists in General Course	2	
Manual Training (One Year Normal Course)	3	
Dairy Courses	128	
Stock and Seed Judging	190	
Poultry Raising	65	
Horticulture Courses	145	
Apiculture	126	
Drainage and Drainage Surveying	6	
Farm Power	156	
		1,562
Domestic Science (at Macdonald Institute)		368
Summer Courses:		
High School—First Year, Second Year	58	
Public School Teachers, First Year	152	
Public School Teachers, Second Year	145	
Schools for Rural Leadership	83	
Farm Mechanics	9	
Course for School Inspectors	9	
		824
Total		2,386

ANALYSIS OF COLLEGE ROLL (GENERAL COURSE), 1920.

These figures are taken from the attendance in the Fall Term, 1920.

From Ontario

Algoma	2
Brant	9
Bruce	9
Carleton	46
Dufferin	..
Dundas	4
Durham	5
Elgin	4
Essex	10
Frontenac	5
Glengarry	4
Grenville	5
Grey	6
Haldimand	5
Halton	10
Hastings	4
Huron	8
Kent	4
Lambton	7
Lanark	11
Leeds	6
Lennox and Addington	3
Lincoln	14
Middlesex	13
Muskoka	9
Nipissing	3
Norfolk	9
Northumberland	3
Ontario	10
Oxford	16
Parry Sound	1
Peel	6
Peterboro	2
Perth	11
Prescott	4
Prince Edward	2
Rainy River	1
Renfrew	9
Russell	2
Simcoe	10
Stormont	1
Sudbury	1
Thunder Bay	4
Timiskaming	2
Waterloo	12
Wellington	36
Wentworth	16
York	52
Total from Ontario	423

From Other Provinces of the Dominion.

Alberta	6	Nova Scotia	12
British Columbia	13		
New Brunswick	1	Total from other Provinces	32

From Other Countries.

B.W.I.	2	England	2	U.S.A.	4
Japan	1	Scotland	1	U.S. of Columbia	..
		S. Africa	1		
				Total from other Countries	13

AGES AND RELIGIOUS DENOMINATIONS

The limits of age in the General Course, 1920, ranged from 18 to 45 years. The average age was 21.

Anglican	106	Friends	3	Union Brethren	3
Baptist	25	Lutheran	6	United Brethren	1
Christadelphian	1	Mennonite	1	Unitarian	1
Congregational	7	Methodist	136		
Church of Christ	3	No Religion	3		
Disciple of Christ	1	Presbyterian	164		
Evangelical	1	Roman Catholic	15		

DEGREES AND DIPLOMAS IN AGRICULTURE.

The following students graduated in 1920 with the degree of Bachelor of the Science of Agriculture (B.S.A.).

Chemistry and Physics Option.

Campbell, H. M., Walkerton, Ont.
Delong, W. A., Acaciaville, Digby Co., N.S

Biology Option

Hurst, R. R., Charlottetown, P.E.I.
Jackson, A. B., Elmira, Ont.

Horticulture Option.

Cudmore, H. J., R. R. 1, Bronte.
Dickey, C. M., Kentville, N.S.
Kimball, D. A., Vineland Station.
Manton, W. D., Eglinton.
Murray, Robert, 75 Sheldrake Blvd., Toronto.
Oliver, Richard W., Queen St., Guelph.
Roger, John C., 169 Florence St., Ottawa.

Dairy Option.

Bird, W. J., 108 Eglinton Ave., Toronto.
Bissett, W., Goderich.
Clark, A. P., 70 Brock Ave., Toronto.
Gandier, B. P., Windsor.
Light, H. J., Lambeth.
Sproule, W. H., 55 London Road, Guelph.
Sweeney, J. R., Winnipeg, Man.
Way, J. I., 24 Gladstone Ave., St. Thomas.

Bacteriology Option.

Odell, F. C., Imperial Bank, Ottawa.

Agricultural Option.

Adair, L. C., Nottawa.
Anderson, N. S., Forest.
Campbell, C. A., R. R. 1, Marshville.
Connon, P. C., Nelson.
Currier, W. L., 36 Cooner St., Ottawa.
Curtis, Nicholas, R. R. 2, Simcoe.
Dow, N. D., Lacombe, Alta.
Eaton, Ernest Lowden, Upper Canard, N.S.
Ferguson, P. H., Sedley, Sask.
Fleming, W. A., Queen St., Truro, N.S.
Gilbert, A. F., 545 King St., Peterboro.
Hamilton, L. H., Arthur.
Hansuld, A. F., Tavistock.
Hill, W. G., 18 Farnham Ave., Toronto.
Hood, G. B., 79 Liverpool St., Guelph.
Hopper, W. C., Westboro.
King, S. W. Hickson.
Knox, R. G., R. R. 2, Indian River
McCharles, M. D., Baddeck Bridge, N.S.
MacDonald, A. B., Glassburn, N.S.
McMullin, W. B., Blytheswood.
Malyon, M. W., Uxbridge.

Agriculturul Option.—Concluded

Mason, H. C., 120 Hawthorne Ave., Ottawa.
Minielly, E. G., Wyoming.
Musgrave, A. H., 48 Collier St., Toronto.
Nixon, C. M., Box 577, Sault Ste. Marie.
Oldfield, H. G., R. R. 1, Inglewood.
Porter, A. M., 44 Harvard Ave., Toronto.
Quail, E. J., North Osgoode.
Rowland, H. F., 62 Elm Ave., Toronto.
Scouten, W., Milton.
Shorey, W. P., R.M.D. 4, Napanee.
Steckle, J. S., R. R. 2, Kitchener.
Steele, J. A., Almonte.
Sutton, R. G., Norwich.
Tinney, B. F., Charlottetown, P.E.I.
Townsend, D. G., 22 Robinson Ave., Guelph.
Vahey, P., R. R. 3, London.
Wiggins, F. A., R. R. 4, Kemptville.

RECIPIENTS OF ASSOCIATE DIPLOMAS, 1920.

Alp, H. H., Granton.
Archibald, Arthur Box 282, Seaforth.
Armstrong, Arthur E., Ashworth.
Armstrong, Thomas M., 56 Ottawa St., St. Catharines.
Bates, James M., R. R. No. 5, Hamilton.
Beatty, R. C., Box 76, Port Hope.
Bernal, Washington, Bogota, Columbia, S.A.
Bratt, John E., R. R. No. 1, North Malden.
Brennand, Thomas W., 37 Forman Ave., Toronto.
Broughton, Charles E., Whitby.
Brown, Jas. E., R. R. No. 1, Barrie.
Burrows, Reginald B., 91 Cork St., Guelph.
Cassie, Harry L., R. R. No. 3, Elora.
Chamberlain, Gerald C., 166 Clemow Ave., Ottawa.
Chesley, Edward T., 76 Carling Ave., Ottawa.
Chilcott, Ernest B., Burford.
Claus, Leon B., Ridgeway.
Cline, Courtland A., 161 Sanford Ave., N. Hamilton.
Cockburn, Alexander B., R. R. No. 1, Puslinch.
Cody, Walter B., 55 Wentworth St. S., Hamilton.
Cole, Henry A., R. R. No. 2, Brockville.
Cooke, Harold E., Cataraqui.
Christensen, E., Caledonia.
Davidson, John G., Kemptville.
Davis, H. J.
Disher, Merrills W., Ridgeway.
Dyer, James D., R. R. No. 3, Oshawa.
Edwards, John W., Cataraqui.
Ellsworth, Kenneth, R. R. No. 1, Ridgeway.
Emigh, Gordon M., R. R. No.2, Burgessville.
Fidlar, David C., Lambeth.
Fleming, Michael E., Coniston.
Fraser, Norman M., Merivale.
Graham, Jessie K., O.A.C., Guelph.
Greanoy, Francis J., R. R. No. 2, Mountain.
Griffiths, John T., R. R. No. 1, Fonthill.
Grimes, Michael, 69 Forbes Ave., Guelph.
Hammersley, Alfred S., 67 Forbes Ave Guelph.
Hancock, Marcus L., Box 145, Fonthill.
Harley, Arby Wilfred, Burford.
Hart, Douglas H., R. R. No. 3, Woodstock.
Hartley, Harry H., R. R. No. 3, Woodstock.
Hastings, R. J., Anping, Formosa, Japan.
Hocking, Roy A., R. R. No. 1, Cromarty.
Howarth, Chas. M., 6 Hurndale, Toronto.
Jackson, Earl, R. R. No. 2, Wallenstein.
Jamieson, Harold W., R. R. No. 1, Shanty Bay.
Karn, Freeman M., R. R. No. 1, Woodstock
Leaver, Lloyd H., 32 Penwood Rd., Toronto
Lee, Clarence, 14 Forbes Ave., Guelph.
McKay, Wm. G., R. R. No. 4, St. Mary's.
McLennan, Finley C., Lancaster.
McMullen, William S., R. M. D. 1, Hamilton.
McPharlin, Joseph Gabriel, Essex.
Marritt, Frank F., R. R. 3, Keswick.
Matheson, G. Lawrence, 69 Russel Ave., Ottawa.
Moore, John McKay, Strathroy.
Munro, Jonathan A., Slate River.
Nelles, Malcolm S., Grimsby.
Oldfield, Richard E., R. R. 1, Inglewood.
Page, Stewart L, Thornhill.
Painter, Richard 10 Strathcona Ave. S. Hamilton.
Pawley, John L. D., R. R. 1, Brampton.
Raithby, George E., R. R. 1, Auburn.
Renwick, Herbert Lewis, Hespeler.
Reed, William H., 179 Dundas St., Belleville.
Ripley, Philip Oscar, R. R. 1, Sonya.
Rogers, Russell John, New Lowell.
Ross, Adam F., Devlin.
Rowlands, Walter A., 1 Hyde Park Ave., Hamilton.
Shaw, James H., R. R. 2, Hespeler.
Sheppard, Edwin R., Waubaushene.
Shields, Thomas H., 153 Benson Ave., Peterboro.
Shore, Frederick B., R. R. 4, London.
Shutt, Donald B.71 St. Clements Ave. Toronto
Smith, George D. C., O.A.C., Guelph.
Stewart, Colin H., R. R. 1, Eglinton.
Stirrett, George M., 423 Indian Rd., Toronto.
Stock, Frederick Wm., Tavistock.
Stott, Reginald D., 20 Maynard Avenue Toronto.
Thomas, Fletcher S. P., Streetsville.
Thompson, John W., Stirling.
Toner, William G., Box 643, Collingwood.
Watson, Arthur W., 181 Fourth Ave., Ottawa.
Waugh, Richard F., 26 Broadway Ave., Ottawa.
Welland, Frederick J., 10 Aberdeen St. S., Galt.
Western, Hubert U., Windermere.
White, Ralph E., R. R. 1, Myrtle Station.
Whitelock, J. Earl, R. R. 3, Woodstock.
Whiteside, Albert Gordon, O.A. College.
White, Oliver H. J., 5 Douglas St., Stratford
Wilcox, Ellsworth P., 43 Albert St., Galt.
Wilson, Harold Clifford, R. R. 1, Delhi.
Wyatt, Herbert R., R. R. 1, Cottam.

MANUAL TRAINING CERTIFICATES, 1920.

Beauprie, L. W., Beechburg, Ont.
Hoover, W. J., Brussels, Ont.
Burke, D. G., Sault Ste. Marie, Ont.
Mitchell, W. J., Brantford, Ont.
Simpson, N., Burks Falls, Ont.

MEDALS, SCHOLARSHIPS AND PRIZES AWARDED, APRIL, 1920.

1905 Scholarship.

($50 awarded by committee of staff to best "all round" man at close of third year).—D. C. McArthur, Appin, Ont.

Governor-General's Silver Medal.

(General proficiency, first and second year work).—D. H. Hart, R.R. 3, Woodstock, Ontario.

George Chapman Scholarship.

($20 in books, proficiency in English, first and second years).—E. T. Chesley, 76 Carling Ave., Ottawa.

Second Year Essay.

($10 in books).—R. A. Hocking, R.R. 1, Cromarty, Ontario.

General Proficiency, First and Second Year Work.

($10 in books).—D. H. Hart, R.R. 3, Woodstock.

Scholarships of $20 Each, Awarded for Proficiency in First Year Work.

Group 1.—R. E. Balch, 248 Beach Ave., Toronto.
Group 2.—F. B. Hutt, Georgetown, Ontario.
Group 3.—W. K. Riddell, R.R. 2, Granton, Ont.
Group 4.—A. J. Graham, Verner, Ont.

FARM RESULTS

In the farm in connection with the College there are approximately 500 acres used for the maintenance of the college flocks and herds. Good crops were harvested last year and a few points of special interest are noted by the Professor of Animal Husbandry, under whose charge the farm is operated:—

It might be well to mention one field which was a mass of twitch after the oat crop was removed in 1919. The land was so badly infested that the field produced a very small crop in 1919. After the oats were removed the land was plowed lightly and tractor-disced twice and then cultivated and harrowed. Later in the fall this field was plowed with a double-disc plow, the front disc cutting six to seven inches deep and the rear disc twelve to thirteen inches. This system brought loose sub soil up and threw it on top of the soddy mass of roots. In the spring of 1920 the field was planted to flint corn in the check-row system. Practically no twitch made an appearance during the past summer, and the field, without fertilizer, produced an excellent crop of flint corn for husking. This looks like a good method by which to rid soil of twitch where the weed has gained a strong foothold.

Besides this it is interesting to note the success of sweet clover as a pasture. In 1919 some 20 acres were seeded with white sweet clover at 15 lbs. to the acre sown with oats. The crop came on well. On June 5th, 1920, 44 head of dairy cattle (nearly thirty in milk) and 8 large brood sows were turned on the sweet clover which would average about up to a man's knee. This stock pastured on the same field until August 15th. All the cattle and pigs did well and the sweet clover saved over 20 acres of oats, which had been sown for annual pasture, so that we were able to cut them for grain and they promise a yield of nearly 80 bushels per acre. Sweet clover seems to be a success as a pasture.

The farm is now laid out into sections and each section is devoted in so far as possible to one crop. We find difficulty in getting enough space for pasture. Sweet clover and the use of peas, oats and red clover mixed for soiling crops help out considerably. Oats at 2 to 2½ bushels per acre to which have been added peas at about a peck per acre and red clover at seven pounds per acre are very useful, cut green, for pigs and cattle. Some of this crop was made into hay this year with good results.

The farm is in a good state of fertility, but we find ourselves a little cramped to handle the large amount of stock which it is necessary to maintain. The four-year rotation—roots and corn, grain, hay, hay or pasture, is still working satisfactorily. Fall work was well finished up notwithstanding the unusually heavy harvest of corn and roots. The year's crop comprised 57 acres of corn, 20 acres of roots, 10 acres winter wheat, 40 acres of barley, 35 acres mixed barley and oats, 85 acres of oats, and 7 acres of peas, oats and clover for green feed, besides hay and pasture.

Field Crop Experiments

About 2500 carefully measured plots are utilized each year for experiments in different classes of field crops. During the past year the distinct and separate experiments which have been conducted in the experimental grounds at the College are represented by the following numbers:—varieties of grains of separate crops, 23. mixtures of grains, 8; selection of seed, 5; dates of seeding, 2; rates of seeding, 5; dates of cutting winter wheat, 1; dates of pulling flax, 1; application of manures and fertilizers, 4; miscellaneous experiments with grain, 12; potatoes, 14; roots, 7; field corn, 4; hay and fodder crops, 19; pasture crops, 2; miscellaneous fodder crops, 2. The number of plots in the individual experiments here referred to would vary from three to four up to nearly one hundred each, according to the requirements of the separate tests. Some of these have been carried out in 1920 for the first time while others form a continuation of experimental work started a few years past. Each year's results are not only valuable in themselves but assist greatly in the accumulation of returns from a series of years which help to furnish data securing information of a very reliable character.

Some Leading Varieties of Farm Crops

Much work has been done in the Field Husbandry Department at the College by securing through importation, selection and hybridization those varieties of field crops which are most likely to give the greatest satisfaction. The following varieties are among the most prominent in the results of the experimental work at the College and in the co-operative experiments throughout the Province: O.A.C. No. 72 and O.A.C. No. 3 oats; O.A.C. No. 21 barley; O.A.C. No. 104 and Dawson's Golden Chaff winter wheat; Marquis and Wild Goose spring wheat; O.A.C. No. 61 spring rye; Petkus winter rye; Common emmer; Rye buckwheat; New Canadian, Arthur and Potter field peas; Pearce's Improved Tree beans; O.A.C. No. 81 soy beans; Hairy vetches; Wisconsin No. 7, Golden Glow and White Cap Yellow Dent corn; Gold Nugget and Longfellow Flint corn; Golden Bantam sweet corn; Black Giant and Mammoth Russian sunflower; O.A.C. No. 1 and O.A.C. No. 2 strains of Yellow Leviathan mangel; Japanese Panicle millet; Early Amber sorghum; Dwarf Essex rape; Sutton's Earliest Drumhead cabbage; Stray Beauty very early, Irish Cobbler medium early, and Dooley, Green Mountain and Empire State late varieties of potatoes; Grimm and Ontario Variegated alfalfas; White and Yellow blossomed sweet clover; and Meadow Fescue, Orchard Grass and Tall Oat Grass. Many of these varieties are grown extentively throughout Ontario and some of them to the exclusion of practically all of the older varieties.

Influence of Seed Grain Selection

In 1920 experiments were conducted in the selection of seed grains of different sizes of each of two varieties. This test belongs to a series of experiments which have been conducted at the Ontario Agricultural College with the object of ascertaining the productivity of different selections of seed of the same variety. In these tests uniform plots were used and exactly the same number of seeds were sown of each selection. The experiments with the different crops have varied from three to nine years in duration through repetitions. There was no attempt to conduct continuous selection and thus present accomulative results but each test was carried on to show simply the influence of one year's selection upon the resultant crop. The tests, however, were repeated over a series of years in order to have the returns as accurate as possible. The comparative figures which will be presented should show approximately what any farmer might realize in crop production through the influence of one year's selection:

Crop.	Selection.	Number of Years Tests.	Average Bushels per acre.
Field Beans	Large seed	3	14.7
	Medium sized seed	3	12.9
	Small seed	3	9.5
	Very small seed	3	7.2
Field Peas	Large seed	6	28.1
	Small seed	6	23.0
	Sound seed	9	29.2
	Split seed	9	10.2
Winter Wheat	Large plump seed	6	46.9
	Small plump seed	6	40.4
	Shrunken seed	6	39.1
	Split seed.	6	9.3
Spring Wheat	Large plump seed	8	21.7
	Small plump seed	8	18.0
	Shrunken seed	8	16.7
Spring Rye	Large seed	5	26.0
	Medium sized seed	5	24.4
	Small seed	5	22.3
	Broken seed	5	16.9
Barley	Large plump seed	6	53.8
	Small plump seed	6	50.4
	Shrunken seed	6	46.0
	Broken seed	6	43.2
Oats	Large seed	7	62.0
	Medium sized seed	7	54.1
	Small seed	7	46.6

It will be observed that in all cases large seed gave better returns than either small or shrunken seed, and that throughout the broken or split seed gave comparatively poor returns. Other experiments in seed selection conducted in a somewhat different way are now in progress. The results up to date show a decided preference for seed of the highest quality.

Live Stock Progress

The beef cattle herds have made progress. A valuable sire was added to the Shorthorn herd early in the College year at a cost of $2,000. His first crop of calves give every evidence of justifying the expenditure. Only two bull calves were sold from the herd, one at $450 and one at $400. All the females were retained for breeding purposes.. The Shorthorn herd never was stronger than it is now.

The small herds of Hereford and Aberdeen Angus cattle are gradually increasing. All female stock is retained to strengthen these herds. An effort is being made to greatly improve these two herds.

In finished steers and in feeders more cattle have been used than formerly. This is a branch of the work that proves interesting and valuable and we try to cover the three beef breeds with stock for class purposes.

For an experiment in steer feeding fifteen steers purchased as calves in August, 1918, were carried through to March, 1920. They carried in five groups of three each as follows:—A. purebred Hereford, Angus, Shorthorn; B. Hereford-

Shorthorn cross; C. Shorthorn grade; D. scrub; E. purebred Holstein. Aside from many valuable figures as to cost of feeding, the experiment brought out the following general conclusions:—

1. Breeding is of decided value in economical beef production, and the use of the purebred sire produces steers that are money makers to both feeder and packer.

2. Steers of good beef type make greater and more economical gains in stable feeding, especially during the finishing period, which is the most important from the feeder's standpoint.

3. Beef bred steers of good type could be advantageously stable fed the year round, especially when there is a scarcity of good pasture.

4. Steers turned out in fair to good condition in spring should make economical use of a supplementary grain ration when pasture becomes short; this is especially true of better bred steers.

5. In stable feeding as the grain ration was increased the cost per lb. of gain with the scrub steers increased much more rapidly than with the steers from the purebred beef sires.

6. It has been shown that where the margin is the same between calves and finished steers the better bred the animals are for beef production the more economically will they produce beef.

7. In this experiment the steers by a purebred beef sire made profit over feed 24.5 per cent. higher than steers of scrub breeding; steers of dairy breeding lost 2.9 per cent. over cost of feed.

8. If a dairy bred calf cannot be economically marketed as veal, it would pay to kill him, as he would not pay for feed consumed if marketed as a steer.

This experiment is to be carried on for a period of years.

Dairy Cattle

A number of Ayrshire females have been added to the herd and a small but select lot of Jersey females is being procured. Records of the cows have not been high but the general health and vigor of the herd has improved. All the cows in milk were entered in the R.O.P. and records exceeding 15,000 lbs. of milk were made. Three good herd sires are maintained and an effort is now being made to strengthen the female end of the herds both in numbers and quality. With little more than 20 cows milking at a time the herd turned in $4,524.73 in milk during the year and twelve bull calves were sold for breeding purposes at prices from $75.00 up to $200.00 each.

Lamb Experiment

The experiment outlined in the last report was carried forward another year. In the autumn of 1919, 8 ram lambs, 8 ewe lambs, and 8 wether lambs were purchased on Toronto market. These lambs were thin and scraggy. They were put in to show whether or not it pays to finish lamb and to make out a case against the ram lamb as compared with wethers as feeders. The lambs were put in November 6th, 1919, grain feeding commencing November 19th. They were killed in Toronto January 9th, 1920. All the lambs cost 11 cents per lb. when put in. The ram lambs sold at 16½ cents per lb.; the ewe lambs at 18 cents per lb. and the wether lambs at 18 cents per lb., leaving 1½ cents per lb. in favor of the wethers over the rams.

The spread in price between buying and selling was so wide, the lambs, though of inferior quality, paid to fatten.

It is more profitable to fatten wether lambs than either ewes or rams as shown below:

Profit on 8 rams	Profit on 8 wethers	Profit on 8 ewes	Average Profit on each ram	Average Profit on each wether	Average Profit on each ewe
17.95	$21.29	$17.74	$2.24	$2.66	$2.22

Swine

The new piggery was completed during the year and now the Department has an up-to-date building on high ground and very suitably located for the raising of pigs. The building is 127 feet long and 32 feet wide and provides 10 pens 8 feet wide by 12 feet deep for sows with litters and 14 pens 11 feet wide and 12 feet deep for growing pigs. The building and yards were erected at a cost of $8,000 not including some old lumber used. During the construction of the building the pig feeding work was somewhat upset and experimental work could not be carried forward successfully. However, the herds did exceptionally well throughout the year and turned in the record revenue of $7,215.97. The foundation stock in Yorkshires, Berkshires and Tamworths is strong and Duroc Jerseys, Poland Chinas and Chester Whites are kept as well for classroom.

Sale of Stock

The practice of holding an auction sale was not followed because it was felt that to make a good sale it would be necessary to dispose of too much of the stock needed in the herds. However, upwards of $6,000 worth of breeding stock was sold during the fall. Next year the auction sale will be continued.

Sale of cattle for the year	$9,788 07
“ “ pigs “ “ “	7,215 97
“ “ sheep “ “ “	1,265 30
“ “ milk “ “ “	4,524 73
Other Sales “ “ “	2,173 20
	$24,967 27

Studying and Controlling Insects

Research work in entomology and measures for the control of insect pests are combined in the work in the field during the summer months in various parts of the Province.

During the past year the important new work in this line has been the discovery of the existence of the European corn borer in Elgin County. This pest was discovered across the line a few years ago and has occasioned considerable alarm, more especially as there is no definite information available as yet as to its life history or exact seriousness. After its existence was discovered in Ontario the first step was to learn the extent of its prevalence. Accordingly the Provincial Entomologist co-operated with the Dominion Entomologist and two Provincial men were placed in the field for scouting work. The borer was discovered in portions of Welland, Haldimand, Oxford, Huron, Elgin, Middlesex and Kent

Counties and quarantine regulations were adopted by the federal authorities to prevent the shipment of flint corn on the cob out of the affected area. Steps were also taken to study the life history and habits of the borer during the winter months with a view to recommending, if possible, measures of eradication or prevention next year.

During the season other experimental work was carried on and the main features are thus described by the Provincial Entomologist: —

CABBAGE MAGGOT—The investigation of this insect was continued and is now almost completed. Much new data was obtained during the year and nearly all the important points in the life history and control worked out. There is no doubt now that in corrosive sublimate we have an efficient remedy, but there still remain several important points to solve before we can confidently state the most economical method of using this substance. It is, therefore, the intention to publish a short circular this year giving the most valuable results so far obtained for the grower and next year to prepare in bulletin form a comprehensive account of the insect.

BLACKBERRY LEAF MINER—The study of this troublesome pest has also been almost completed and we are glad to be able to say that after many failures we think that we have at last discovered a comparatively simple method of control by the use of hydrated lime alone or combined with a sticker. Before publishing our results we wish to test this remedy out on a large scale in co-operation with the growers.

LEAF BUGS—This summer two hitherto unreported insects were found to be doing much damage to fruit. One of these proved to be the so-called Green Bug of the Apple, Lygus communis, and the other the White Oak Leaf Bug, Lygus quercalbae. The former destroyed a large percentage of the pears in two orchards near Newcastle and the latter about two thirds of the peaches in an orchard near St. Davids. Several visits were made to both localities during the season and valuable data obtained on both insects. Plans have been made already for testing control measures next year.

Testing Spray Mixtures and Dusts in Orchards

More than twelve acres of orchard composed of large apple trees were used in a careful series of tests to determine the merits of the various orchards sprays and dusts. Unfortunately no very definite conclusions can be drawn from these tests as to the fungicidal values of the different substances, simply because the season was not favorable for a bad attack of disease and all sprays and dusts gave complete control of apple scab and sooty fungus. The results on biting insects were of more value as there were a good many of these insects to combat. Examinations of the different plots at different times in the summer and fall showed that there was very little difference in the effectiveness of the arsenicals in any of the combinations used, whether in liquid sprays or in dusts, and that thoroughness was the most important factor in securing control. One of the orchards, six acres in extent, had over 98 of absolutely clean fruit and the other about 95.

Spraying Cherries to Ward off Brown Rot

In two previous years it was demonstrated that sweet cherries could be prevented from rotting at picking time by dusting them with finely ground sulphur a couple of days before picking. We wished, however, to see whether some liquid spray could not be found that could be applied at this date to secure the same effect and yet not stain the fruit. Soluble sulphur was, therefore, tried this year and though the season was not favorable for the development of rot it looks as if this substance, at the strength of 1½ pounds to 40 gallons of water, will be effective and safe. At greater strengths it causes some burning. It is the intention to continue this work next year.

Spraying Currants to Retain their Foliage

In 1919 we proved very clearly that Bordeaux mixture was much the best fungicide for black currants and that three applications under that year's weather conditions retained the foliage fully two months longer than where no spraying was done. These tests were repeated on a much larger scale this year and while the results were not striking because the season was, as said above, unfavorable for leaf diseases, yet they showed that in spite of this fact Bordeaux helped to give better foliage.

New Disease of Strawberries

The Botanical Department thus reports on a new disease affecting strawberry plants:—

Until recently the leaf spot of strawberry, due to *Mycosphaerella fragariae,* has been considered to be the most serious leaf disease of the cultivated strawberry. During the last two years another leaf disease has been observed which seems to be generally distributed through the southern and eastern parts of the Province. This disease from its appearance can be appropriately called "leaf scorch." Considering the fungus responsible for the disease, it can be designated mollisiose.

In the spring, May and June, the strawberry leaves become covered with small, irregular, purplish spots. The spots enlarge and coalesce until the whole leaf may become involved. When the spots have become quite large they turn ashy brown or dirty gray in the centre and then small fruiting specks or acervulae appear. In these acervulae hyaline, two-celled spores appear. These spores serve to spread the disease to other leaves and plants. Later, in July and August, the entire leaves dry up and the diseased plants take on a scorched appearance as though burned over with fire. It is not uncommon to see whole beds present this appearance and it becomes difficult to distinguish the plants suffering from leaf scorch from those severely injured by drouth and white grub injury.

The fungus causing the summer stage of the leaf scorch has been identified with *Marssonia potentillae* (Desm) Fisch. This is the conidial or imperfect stage. When the plants are mulched the disease may be carried over winter by this stage of the fungus. When the leaves become dead or dry, another stage is produced in the spring following. This later stage is called the perfect or ascigerous stage, and has been identified as Mollisia earlianna (E & E) Sacc. This stage begins fruiting in April and lasts until June and acts as the source of infection in most of Southern Ontario.

Not all varieties are equally susceptible to the disease. The most susceptible seems to be Clyde followed by Glen Mary, Haverland, Senator Dunlop, New Williams in the order given here.

Control measures have not been worked out. From field observations the following procedure would seem to be desirable:—

Clean cultivation.
Removal and destruction of all dead leaves in spring.
Spraying with Bordeaux mixture.

Seed Potatoes and Disease

In connection with the campaign to improve the potato crop of the Province important work has been done by the Botanical Department in studying potato diseases. In co-operation with the Agricultural Representatives and as part of the general plan this work has been undertaken each summer during the past three years; the object in view being to determine the best source from which to obtain seed potatoes as free as possible from the so-called physiological diseases such as Leaf Roll and Mosaic, and which would give the largest yields.

In the first two years trial plots were conducted in every county in Southern Ontario. This year twelve of the chief potato growing districts of the Province were selected in which to carry out the tests. The varieties experimented with were—Irish Cobblers, Green Mountains and Rural New Yorker. The sources of seed were—Northern Ontario, Southern Ontario (selected), Southern Ontario (common) and the Maritime Provinces. The seed from these sources was planted in plots side by side in the twelve different districts. The Agricultural Representatives, cooperating with the farmers in their counties, looked after the planting, spraying and cultivation of these plots. During the summer each plot was inspected for disease by a member of the Botanical Department. This fall the Agricultural Representatives ascertained the yields from the various plots. The following tables summarize the average percentage of leaf roll, mosaic, black leg, foreign, misses and weak plants found in the crops grown from the seed of the three varieties from the four different sources. The tables also show the average yields obtained from each variety from each source.

Irish Cobbler

Source of seed.	Average percentage of Leaf Roll	Average percentage of Mosaic.	Average percentage of Black Leg.	Average percentage of Foreign.	Average percentage of Misses.	Average percentage of Weak.	Average percentage of Yield.
Northern Ontario..........	.27	1.8	.86	.18	6.56	3.61	198.0
Old Ontario (selected)......	3.	.77	.45	.045	4.65	2.	201.1
Old Ontario (common)......	13.	3.3	1.2	2.3	8.2	1.85	164.9
Maritime.................	.77	.36	.409	.9	5.04	2.54	210.1

Green Mountains

Northern Ontario..........	.41	1.4	1.7	0.	7.8	2.93	218.3
Old Ontario (selected)......	1.8	22.8	.08	.87	4.02	1.3	215.8
Old Ontario (common)......	1.8	51.7	.12	0.	3.8	1.89	188.2
Maritime.................	.18	1.5	.18	0.	4.5	2.29	218.3

Rural New Yorker

Northern Ontario..........	1.6	5.6	1.08	.04	6.5	3.2	201.7
Southern Ontario..........	1.3	5.08	.66	.04	5.12	2.4	202.3

Experiments in potato disease control were also carried on. In the treatment of Black Scurf or Rhizoctonia a corrosive sublimate solution was used in varying strengths and it was found that corrosive sublimate 1-500 for two hours gave perfect control. Experiments in the control of Leaf Roll and Mosaic were also carried on in cooperation with Federal officials but some years will be necessary before definite conclusions are reached.

"Dry Formaldehyde Treatment" for the Prevention of Oat Smut

This method has been tested for three successive years. In all twenty-eight field trials, under ordinary farm conditions, have been made and some 1,677 bushels of oats treated by this method. The results have been uniformly satisfactory. No injury to the grain has resulted and the control of the smut has been almost perfect. In no case has there been more than a trace of smut in any field in which treated seed was sown, while the amount of smut in the fields sown with untreated seed for checks averaged 5.8 per cent. The advantages of this method over those which have been formerly practiced here in Ontario are, simplicity, rapidity and ease of application. In our experiments here it was found that one hundred bushels of oats could be treated in fifty minutes by this method and that there was no waiting for the seed to dry after treatment; no danger of it sprouting or moulding or being swollen so that it would not run freely through the seed drill. The chief disadvantage of this method is the fact that the strong formaldehyde fumes irritate the eyes, nose and throat of the operator. This disadvantage may be overcome to a large extent by providing for a free circulation of air and by holding the sprayer down close to the grain when the solution is being applied.

Artificial Light and Culling in Poultry

More information was obtained during the year by the Poultry Department on the effects of artifical lighting on egg production. The results so far indicate that where the lights are used regularly so as to maintain fourteen hours of light, allowing hens ten hours to sleep, best results will be secured. Used in this way artificial lighting increases the general production of a flock by about twenty-five per cent. during the short days but has a tendency to decrease egg production during April and May. Too much or irregular lighting appears to cause the birds to moult.

In the breeding work no unusually high individual layers have been tried for or produced during the year but the general average has been slightly improved and the number of poor or inferior layers is getting less each year. The strain being developed may be depended upon to produce about 160 eggs each in their pullet year, but it has not yet been found possible to produce one hundred which when housed together will average 200 eggs each. In addition to the work with Plymouth Rocks, breeding work is being done with White Leghorns and more progress has been made during the past year than in any previous year.

In addition to the work at the College attention is given to improving the poultry of the Province generally. In the first place some supervision is given to the poultry breeding stations which have grown up all over the Province to supply settings to children taking part in rural school fairs. These are not "stations" in the ordinary sense of the term but are ordinary farms which have undertaken to give special attention to poultry and supply eggs of a required standard. There are now 160 of these and the Poultry Department inspects and culls each of these flocks at least once a year and supplies the males to head the pens. About 7,000 hens were culled last year and about 600 cockerels were required for this work. Four flocks were struck off the list as being unsatisfactory but on the whole a large amount of good breeding stock is being distributed in Ontario in this way.

In addition to this work, however, the Department has given about 50 culling demonstrations and lectures at over 40 special poultry meetings in all parts of the Province. In the County of Oxford, for instance, every flock in one whole township was culled and the "scrub" hen eliminated. From this extensive work in culling the conclusion has been reached that about 35 per cent. of the birds are unprofitable as egg producers—one third of the hens kept do not pay for their keep by the number of eggs laid. Aside from the value of the actual culling, the demonstrations have had a high value in the information given on feeding, cleanliness and other subjects.

Wide Range of Interest in Bacteriology

The Bacteriological Department has been able to be of assistance in a very large number and variety of instances. In the distribution of bacterial cultures for the inoculation of legume seed there is a growing interest and 5,260 cultures were sent out as follows:—

Peas, 2,473; Sweet Clover, 951; Alfalfa, 935; Red Clover, 601; Alsike, 192; Sweet Peas, 30; Beans, 24; Vetch, 19; Soy Beans, 17; White Clover, 11; Crimson Clover, 2; Mammoth Clover, 1.

Of the cultures for peas sent out as above, 2,096 were sent to a canning factory for distribution with their seed.

A total of 76 lactic starters and 13 Bulgaricus cultures were sent to creameries, cheese factories and other applicants.

A large number of specimens of various kinds were received for examination. These included 225 specimens of different kinds of live stock suspected of disease or abnormal condition, 68 samples of well water, of which only 8 were passed as fit for consumption, and about 20 samples of milk. In connection with the examination of milk it was found that even some pasteurized milk showed high bacterial counts and greater supervision is necessary on the part of those concerned.

Improving Public and Private Grounds

An important recent development is the interest shown throughout the Province in beautifying public and private grounds. This is largely the result of the assistance given by the landscape garden branch of the horticultural department. In so far as the capacity of a limited staff will permit, advice is given and plans supplied in response to requests from all parts of rural Ontario. The demand for work of this kind is shown by the fact that during the past year plans for the improvement or establishment of parks, school grounds and farm homes were supplied as follows:

Public parks, 15.
School grounds, 55.
Churches and public buildings, 10.
Farm and private home grounds, 42.

Power on the Farm

The Physics Department has been rendering service to the farmers of the Province by supplying practical information on farm power and associated subjects by correspondence as well as short courses. Numerous enquiries have been received and specific information given in every case possible. Farmers should feel free to avail themselves of this service even to a larger extent. The subjects on which information is sought reflect present day rural problems and include such subjects as: character and installation of lightning rods, tractors, labor saving devices for the home, gas and electric farm equipment, cold storage and many similar subjects. In the matter of improved equipment for Ontario farms and homes the department has prepared data of approximate cost of equipment and installation of appliances recommended as follows:—

(1) Lighting system (gas-electric outfit) $575 to $1200.
(2) Tankless water system (electrically operated) $185 to $450 where electrical system is already installed.
(3) Pneumatic water system, hand operated including installation $180, gas operated including installation $350, electrically operated including installation $325.
(4) Septic tank including installation, $75 to $100.
(5) Chemical toilet including installation, $75 to $175.
(6) Hydraulic ram and installation, $150 (average sized installation).
(7) Plumbing fixtures:—toilet, bath, sinks, etc., $150 to $500.
(8) Electric toaster, $5 (approximately).
(9) Electric washer, $200 (approximately).

The prices are changing monthly and differ for different places in the Province and particulars re cost of installation may be obtained from local dealers.

Soil Survey Work

Some further progress has been made with the soil survey work carried on by the Chemistry Department but the work has not been advanced as rapidly as expected on account of the death of one of the important members of the staff in charge of the field survey. Most of the Province had been covered, however, different types charted and samples taken for analysis. From the notes and maps thus secured a bulletin is now being prepared and the work of analyzing the soils of many sections both east and west is being completed.

In the meantime some demonstration plot work has been undertaken. A plot on the College farm has been undertaken as illustrative of the upland area. A plot has been taken in Norfolk County as representing light sand soils and another in Welland for clay soils.

Helping Solve Chemical Problems

By its work of analysis the Chemistry Department has not only kept in touch with the problems facing the farmer but has aided in the solution of many. Altogether over 1200 samples of various kinds have been analyzed during the year. These included wheat and flour, soils and fertilizers, domestic water, feeds, honey, maple syrup, lightning rod materials, poisons and many other materials.

The withdrawal of government control of flour mills and the return to old grades of flour has caused an extra demand for testing, especially as many bakers are seeing the advisability of buying their flour on the basis of standard tests.

Soil examinations further emphasize the conclusion previously reached that the main mineral deficiency in Ontario soils is lime and phosphorus.

Of the 47 samples of well water examined 90% were condemed as being unfit for consumption, showing the great need for caution on the subject.

Examination of feeds, which more properly comes under the Feeding Stuffs Act administered by the Federal Department, reveals the fact that many mill feeds contain weed seeds which are poisonous to young stock, especially pigs. These seeds are rich in protein and fat and make the guaranteed analysis show up well but are often fatal to young stock and the feeder should take steps to adequately protect himself in these matters.

High Prices Retard Drainage

During the past year the drainage staff have noted less activity than for several years past in the installation of tile drains. This has not been due to a lack of appreciation of the value of drainage so much as to the shortage of help and the high cost of tile and labour. Notwithstanding this there has been a very considerable demand for drainage surveys, as many farmers find it pays even with the high prices. Five men are kept busy most of the season in meeting the demand and 129 surveys were made in 31 different counties. The counties of Lambton, Kent, Bruce and Wellington led in the demand for surveys. An effort has been made to make surveys and supply blue prints only where there is a real immediate intention to instal the drains. To ascertain how far this had been done where surveys were made in the past a questionnaire was sent out to those for whom surveys were made in 1916, 1917 and 1918. Replies were received from 245 farmers and these showed that work had not been started in 30.8% of the surveys. Of the others 26.5% had finished and 41.7% partially so. Shortage of help and high cost of materials were given as the reasons where the work had not been carried out. The replies also brought many testimonies to the value of drainage where it had been done, one man stating his crops had been doubled since his farm was tiled.

In addition to the survey work some educational work has been done among ditching machine operators. Short Courses were conducted at Guelph and Chatham and ten attended the former and twenty the latter. It is felt a great deal of good can be done in this way.

Work of Farm Survey Department

1. A survey of 410 Oxford County farms with special reference to cost of milk and effect of purebred bulls—results published in Bulletin 275 and in Bulletin now under preparation.

2. A survey of 385 Middlesex County farms including cost of beef production and economic position of grazing land—published in Bulletin 278 and in Bulletin now under preparation.

3. A survey of 363 Dufferin County mixed farms and publication in Bulletin 278 of results thereof.

4. Completion of 1919 survey of 340 Dundas County farms with special reference to milk costs and the relative profitableness of cheese factories and condensors as markets for milk—results published in Bulletin 278.

5. A survey of 265 Durham County farms with special investigation into the economy and costs of apple production—results published in Bulletin 282.

6. A survey of 175 fruit farms in the Niagara district for the year 1920. Field work completed Jan. 10th, 1921, and survey now being compiled and analysed.

7. Special detailed investigation into costs of market milk on 100 York County and 64 Oxford County farms under direction of the Ontario Cost of Milk Commission. Reports issued under dates of Sept. 3rd, 1920, and January 15th. 1921, and used by Board of Commerce in settling questions of milk prices in Toronto and other eastern cities.

8. Special investigation into costs of producing tomatoes on 49 Niagara farms. Report lately published in leaflet form by Dept. of Agriculture.

9. Special detailed investigation into cost of production of beef with special reference to high freight rates on live stock and their effect on the industry. This investigation commenced February 1, 1921, and is about completed.

10. Inauguration in Agricultural Representatives Short Courses of instruction in Farm Bookkeping, Farm Management and Farm Business.

11. Development at the Ontario Agricultural College of a complete undergraduate course for all classes in Farm Economics, including Farm Bookkeeping, Farm cost Accounting and Farm Business Management.

12. On April 13, 1920, the Department started a detailed investigation into the actual cost of production of all farm products grown in Ontario. There was installed on about 60 farms, carefully selected as representing average conditions in the type of farming followed, dairy farms in Oxford County and mixed farms in Dufferin County, a complete set of books to record all transactions and to distribute the labour of the farm among the different crops and live stock and to apportion the farm feed among the different classes of live stock on the basis of amount consumed. By this means exact information on the costs of production of every agricultural product on Ontario farms can be obtained.

MACDONALD INSTITUTE

The Normal Course in Domestic Science.

Sixteen entered this course in 1918; fourteen passed to the senior class in 1919; thirteen passed the final examinations and have received the Macdonald Institute Teachers Certificate in Domestic Science.

Sixteen entered the junior class in September 1919; sixteen passed on to the senior class last June and thirteen are now in attendance.

Thirteen entered the junior class last September and are now in attendance.

The Associate Course.

Twenty-six entered this course in 1918; eighteen passed to the senior class in 1919; nine passed the final examinations last June and have received the Macdonald Institute Associate Diploma.

Twenty-one were admitted to the Junior class in September 1919; eighteen passed on to the Senior class last September and are now in attendance; twenty-four entered the junior class last September and are now in attendance.

One graduate returned for a third year's work in the Autumn term of 1920, and is now in attendance.

The Housekeeper Course.

Sixteen entered this course in 1918; fifteen passed on to the senior year in 1919; two wrote special examinations in Nova Scotia and entered the senior year in 1919, and thirteen have received the Macdonald Institute Housekeeper Certificate.

Eleven entered the junior class in September, 1919; nine passed on to the senior class and eight are now in attendance.

Eighteen were admitted to the junior class last September and sixteen are now in attendance.

Six former graduates have completed six months' institution housekeeping, and have been granted the Macdonald Institute Professional Certificate.

The Homemaker Course.

Twenty-four entered the courses in September, 1919; eleven passed the final examinations last June and have received the Macdonald Institute Homemaker Diploma.

Twenty-five were admitted to this course last September and are now in attendance.

The Short Courses.

These had in attendance:—

In the Winter term, January to March	23
" Spring term, April to June	15
" Autumn term, September to December	14

Optional Students.

Eleven optional students joined various sewing and lecture courses through the year.

One student-worker has taken the opportunity to pay for the course by serving nine months; and one student worker is now in attendance.

LOAN COLLECTION WORK FOR WOMEN'S INSTITUTES

Requests:

Home interests	46
House and housekeeping	43
Food and cookery	73
Dietetics	15
Health	30
Household finance	9
Education, Home Economics and General	38
Clubs, social service, etc	118
Gardening and Agriculture	11
Arts and Crafts	6
Patriotic	13
Miscellaneous	52
Total	454

Answered by:

1,114	folders with pamphlets, articles or clippings.
79	books.
57	special letters.
21	letters regretting material out.
46	letters referred to Mr. Putnam, or to other Departments of the College.

SUMMARY OF ATTENDANCE.

A—January to June, completing the College year 1919-1920.	
1. Normal Domestic Science—two year course:	
(*a*) Juniors	16
(*b*) Seniors	13
2. Associate—two-year course:	
(*a*) Juniors	22
(*b*) Seniors	18
3. Housekeeper—two-year course:	
(*a*) Juniors	9
(*b*) Seniors	16
4. Homemaker—one-year course	22
5. Short Courses in Domestic Science:	
(*a*) Winter Term students	23
(*b*) Spring Term students	15
6. Optional students	7
7. Student-workers	1
8. Public School Classes	81
B—September to December, opening the College year of 1920-1921.	
1. Normal Domestic Science—two-year course:	
(*a*) Juniors	13
(*b*) Seniors	13
2. Associate—two-year course:	
(*a*) Juniors	24
(*b*) Seniors	18
(*c*) Third Year	1
3. Housekeeper—two-year course:	
(*a*) Juniors	18
(*b*) Seniors	8
4. Homemaker—one-year course	25
5. Short Course in Domestic Science—three months	14
6. Student Worker	1
7. Public School Classes	65
C—Students entered in both above lists	74

LIST OF GRADUATES FROM HOME ECONOMICS COURSES.

Graduates of the Normal Course in Domestic Science:

1. Miss Lillian S. Armstrong......227 Carling Ave., Ottawa, Ont.
2. " Bessie S. Dickinson......Duncan, B.C.
3. " Ria Fouche......Robertson, Cape Province, South Africa.
4. " Olive Gardiner......112 Julia St., Sarnia, Ont.
5. " Beatrice Grant......Box 454, Glace Bay, N.S.
6. " Elsie M. Luckham......165 Glen Rd., Toronto, Ont.
7. " Ruth McMillan......129 6th Ave. S., Calgary, Alta.
8. " Ivy M. van der Merwe......Box 70, Potchefstroom, Transvaal, S. Africa.
9. " Florence M. Morton......Middle Sackville, N.S.
10. " Letitia A. Reid......Swift Current, Sask.
11. " Josephine Rogers......Kerwood, Ont.
12. " Agnes E. Sharpe......Lower Millstream, N.B.
13. " Muriel E. Staples......Cavan, Ont.

Graduates of the Housekeeper Course:

1. Miss Marian E. Bristol......Marmora, Ont.
2. " Maria J. Davidtsz, Taaiboschspruit P.O., Dist. Potchefstroom, Transvaal, S. Africa.
3. " Edith D. Havilland......129 Mornington St., Stratford, Ont.
4. " Annie Dickson......62 Wentworth Ave., Galt, Ont.
5. " Elizabeth Ellis......Prince St. West, Truro, N.S.
6. " Evelyn Ferguson......The Manse, Bedford Cape, S. Africa.
7. " Anna McCallum......Deloro, Ont.
8. " Florence E. Rickard......Box 17, Bowmanville, Ont.
9. " Eleanor Sugatt......Care A. R. Coffin, Esq., Truro, N.S.
10. " Helena S. Taylor......R. R. No. 2, London, Ont.
11. " Ellie H. Todd......Box 633, Collingwood, Ont.
12. " Gladys Warner......Coulson, Ont.
13 " Elsie I. Watt......17 Maple Ave, Toronto, Ont.

Graduates of the Associate Course:

1. Miss Adele Blain......11223 100th Ave., Edmonton, Alta.
2. " Irene Carter......179 Waterloo Ave., Guelph, Ont.
3. " Eva Diltz......Port Credit, Ont.
4. " Edith E. Elliott......P. O. Box 144, Ingersoll, Ont.
5. " Dorothy M. Duff......134 Dublin St., Guelph, Ont.
6. " Gwendolen E. M. Fellows......Meadowvale, Ont.
7. " Helen A. Thomson......753 Richmond St., London, Ont.
8. " Marguerite L. White......46 Park Ave., Guelph, Ont.
9. " Helen Y. Scott......26 Beulah Ave., Hamilton

Graduates of the Home-maker Course A:

1. Miss Marion C. Amas......Qu'Appelle, Sask.
2. " Grace A. Burnside......Madoc, Ont.
3. " Jessie Dyment......R. R. No. 2, Dundas, Ont.
4. " Nora A. Gracey......Wingham, Ont.
5. " Vyvien Henne'......Gananoque, Ont.
6. " Dorothy Johnson......Rockcliffe, Ont.
7. " Mildred P. Lambert......Hamilton, Ont.
8. " Sylvia Luxton......1663 Rockland Ave., Victoria, B.C.
9. " Harriet McIntosh......52 Hillcrest Ave., Belleville, Ont.
10. " Isabelle Toombs......Charlottetown, P.E.I.
11. " Wanda Wilson......Ailsa Craig, Ont.

Graduate of the Housekeeper Course (1917):

1 Miss A. Bertha Schofield......Brockville, Ont.

APPOINTMENTS OF MACDONALD INSTITUTE GRADUATES

TEACHERS

	Class of	Appointed to
Miss Nellie Allely	1912	Alberta Agricultural Schools, Alta.
" Norah L. Burke	1911	Branksome Hall, Toronto, Ont.
" Jessie DeGuerre	1919	Alberta Agricultural Schools, Alta.
" Bessie S. Dickinson	1920	Public School Board, Vancouver, B.C.

APPOINTMENTS OF MACDONALD INSTITUTE GRADUATES—*Con.*

"	Beatrice Grant	1920	Protestant Board of School Commissioners, Montreal, Que.
"	Joan Hamilton	1906	College of Industrial Arts, Denton, Texas.
"	Olive E. Hayes	1915	Soldiers Settlement Board, Vancouver, B.C.
"	Mary C. Hiltz	1914	Manitoba Agricultural College, Winnipeg, Man.
"	Fern Hotton	1914	Soldiers' Settlement Board, Vancouver, B.C.
"	Mary E. Longstreet	1909	Birmingham School, Birmingham, Pa., U.S.A
"	F. Christine McIntyre	1917	Alberta Agricultural Schools, Alta.
"	Alice B. Marcellus	1914	Soldiers' Settlement Board, Vernon, B.C.
"	Florence M. Morton	1920	Gleichen Agricultural School, Alta.
"	J. D. Ross	1907	Park School, Toronto, Ont.
"	A. P. Scott	1916	Alberta Agricultural School, Alta.
"	M. J. Staples	1920	Protestant Board of School Commissioners, Montreal, Que.
"	W. A. Suttaby	1919	Alberta Agricultural Schools, Alta.
"	Marjorie Williams	1916	Soldiers Settlement Board, Toronto, Ont.

HOUSEKEEPERS AND DIETITIANS

		Class of	Appointed to
Miss	Chryssa L. Black	1916	Soldiers' Civil Re-establishment, Toronto.
"	Marion E. Bristol	1920	Y.W.C.A., Owen Sound, Ont.
"	Annie Dickson	1920	Wallingford Hall, Toronto, Ont.
"	M. E. Duff	1917	General & Marine Hospital, St. Catharines.
"	L. Panton	1915	Man. Agricultural College, Winnipeg, Man.
"	Gundrid M. Rebbeck	1920	Calydor Sanatorium, Gravenhurst, Ont.
"	F. Rickard	1920	Y.W.C.A., Woodstock, Ont.
"	A. C. Simmons	1911	Y.W.C.A., Vancouver, B.C.
"	Mary Wismer	1919	Goshen College, Goshen, Ind., U.S.A.
"	Kathleen Coggs	1912	Toronto Orthopedic Hospital, Toronto, Ont.
"	Olive Gardiner	1920	Children's Free Hospital, Detroit, Mich.
"	Mary Healey	1917	General Hospital, Vancouver, B.C.
"	K. Lethbridge	1919	Y.W.C.A., Regina, Sask.
"	Anna McCallum	1920	Industrial Farm, Burwash, Ont.
"	I. M. McIlquham	1916	Brand College, Brandon, Man.
"	E. E. MacLean	1919	Children's Hospital, Winnipeg, Man.
"	F. M. Reek	1916	Soldier's Settlement Board, Prince Albert, B.C.
"	Gladys Warner	1920	General Hospital, Prince Rupert, B.C.
"	Edith E. Zavitz	1919	University Club, Ottawa, Ont.
"	Alice Boughner	1913	Orphans' Home, Concord, New Hampshire, U.S.A.
"	Mary E. Healey	1919	Soldiers' Civil Re-establishment, London.
"	Francis M. Hilliard	1919	Soldiers' Civil Re-establishment, Riverglade, N.B.
"	Adalene Staples	1918	Soldiers' Civil Re-establishment, Montreal, Que.

OTHER WORK.

		Class of	Appointed to
Miss	Elizabeth E. Ellis	1920	Dept. of Agriculture, Truro, N.S.
"	A. E. Sugatt	1920	Dept. of Agriculture, Truro. N.S.
"	Ruth Lampkin	1911	Y.W.C.A., Guelph, Ont.
"	H. L. Easton	1916	Anderson, Indiana, U.S.A.

FINANCIAL STATEMENT, 1920

COLLEGE DEPARTMENT

Expenditure.

Salaries and wages	$127,652 32
Servants' Pay-list	9,493 22
Meat, bread, groceries, laundry, engine room supplies and fuel	76,493 31
Advertising, printing, postage and stationery	3,997 33
Expenses, Short Courses	2,498 27
Temporary Assistance	3,998 09
Student Labor	3,961 04
Travelling expenses and extra lectures	2,373 31
Travelling expenses in connection with Potato Disease	380 15
Library	1,999 90
Expenses, College Judging Team	400 00
Scholarships	100 00
Telephone service, rents, etc	721 17
Furnishings and repairs	7,191 94
Sewage	960 00
Contingencies	1,349 88
Feed of horses	165 99
Purchase and maintenance of automobiles, trucks and tractors	458 09
Rebate Fees to Students	3,755 00
Vote 236, item 16	235 00
Apparatus, machinery, fuel and expenses for course in Farm Power	500 00
Maintenance, 5 laboratories and gymnasium	13,847 80
Total Expenditure	262,531 81
Less Revenue	83,540 69
Net Expenditure	$178,991 12

Revenue.

Board	59,008 45
Tuition and Laboratory Fees	18,416 00
Chemical Analysis	168 22
Rent of Rooms	466 00
Rent of Houses	4,449 50
Rent of Post-Office Boxes	40 50
Supplemental Examinations	190 00
Fines, Breakages, etc	503 53
Sale of One Horse	100 00
Sundries	198 49
Total Revenue	$83,540 69

Student Labor

To different Departments.	
College	$2,251 60
Chemical	42 20
Botanical	17 89
Bacteriological	29 07
Physical	75 65
Entomological	14 22
Gymnasium	46 17
Library	1 17
Farm	733 69
Experimental	299 16
Dairy	24 00
Poultry	65 16
Horticulture	179 35
Mechanical	150 57
Apiculture	31 14
	$3,961 04

Total per month.	
November and December	$1,646 45
December and January	314 32
February	708 78
March	820 22
April	174 12
September and October	297 15
	$3,961 04

MACDONALD INSTITUTE AND HALL.

Expenditure.

Salaries and wages	$24,548 00
Servants' paylist	2,918 08
Meat, bread, groceries, furnishings, repairs, laundry, engine room supplies, fuel, and labor on grounds	27,096 44
Library and stationery	748 83
Maintenance of laboratories in Institute	3,245 04
Total expenditure	$58,556 39
Less revenue	28,462 61
Net expenditure	$30,093 78

Revenue.

Board	$19,552 30
Tuition	8,597 75
Supplemental Examinations	37 00
Fines, Breakages, etc	275 56
Total revenue	$28,462 61

FARM DEPARTMENT.

Expenditure.

Permanent improvements	$922 41
Wages of men, foreman and stenographer	15,602 38
Purchase and maintenance of stock	14,338 10
Farm maintenance, including repairs, blacksmithing, binder twine, seeds, furnishings, fuel, light, advertising, printing, stationery, tools, implements, etc.	6,193 73
Contingencies	288 12
Total expenditure	$37,414 74
Less Revenue	24,967 27
Net expenditure	$12,447 47

Revenue.

Sale of Cattle:—		
25 Bulls at from $35.00 to $740.00	$5,295 00	
2 Heifers at $505.00 and $520.00	1,025 00	
10 Cows from $50.00 to $90.00	620 00	
12 Calves at from $5.00 to $55.00	410 00	
1 Steer	50 00	
17 Steers, 16,563 lbs., at from $12.40 to $17.00 per cwt	2,187 67	
1 Beef Carcass, 835 lbs. at 24c.	200 40	
		$9,788 07
Sale of Pigs:—		
22 Boars at from $15.00 to $55.00	571 50	
78 Sows at from $15.00 to $112.50	4,557 50	
53 Pigs, 12,070 lbs. at from $15.25 to $22.00 per cwt	2,086 97	
		$7,215 97
Sale of Sheep:—		
22 Rams at from $17.50 to $50.00	675 00	
12 Ewes at from $12.50 to $35.00	335 00	
5 Lambs at from $9.00 to $15.00	64 00	
14 Lambs, 1036 lbs. at from 14c. to 27c.	191 30	
		1,265 30
Sale of Milk:—		
23,531½ qts. at from 7c. to 9c.	1,701 71	
100,268 lbs. at from $2.30 to $3.70 per cwt.	2,823 02	
		$4,524 73

REVENUE.—*Continued*

Service of animals	$256 00
Sale of 21 bushels wheat at from $2.00 to $3.00	60 00
Sale of 144/5 tons Ensilage at $6.00	88 80
Sale of 450 lbs. wool at 20c	90 00
Sale of 209½ bushels turnips at 20c	41 90
Sale of 800 lbs. chicken-feed at $2.00	16 00
Sale of 53 loads wood for	253 50
Sundries	122 00
Feed of Horses: 15 horses for 1 year at $83.00	1,245 00
Total revenue	$24,967 27

FIELD HUSBANDRY DEPARTMENT

EXPENDITURE.

Permanent improvements	$1,911 20
Assistant, specialist in plant breeding, stenographer, foreman, teamsters and laborers	21,606 30
Seeds, manure and special fertilizers	960 02
Furnishings, implements, repairs, blacksmithing, etc	1,093 61
Printing, postage, stationery and contingencies	661 72
Purchase of horse and feed	482 10
Total expenditure	$26,714 95

DAIRY DEPARTMENT

EXPENDITURE.

Wages, including foreman, cheesemaker, buttermaker, engineer, stenographer and book-keeper, assistant and official tester of dairy cattle	$4,319 50
Purchasing, hauling and manufacturing milk into butter and cheese	5,796 68
Furniture, furnishings, repairs, etc., laboratory expenses, gas, chemicals, and contingencies	1,600 00
Fuel and light	1,093 24
Total expenditure	$12,809 42
Less revenue	4,076 30
Net expenditure	$8,733 12

REVENUE.

Sale of Cheese, 6,586 lbs. at from .10 to .60	$1,928 83
Sale of Butter, 803 lbs. at from .25 to .58	445 08
Sale of Cream, 1,286½ qts. at from .50 to .75	650 28
Sale of Ice-Cream, 40½ qts. at from .25 to .40	13 80
Sales of Milk, 776½ qts. at from .5 to .10	75 45
Sale of Skim and Buttermilk, 212,680 lbs. at .30 cwt	638 05
Sale of Wheymilk, 98,453 lbs. at .5 cwt	54 42
Sundries	10 39
Rent of Houses	260 00
Total revenue	$4,076 30

DAIRY SCHOOL.

EXPENDITURE.

Wages of instructors, engineer, janitor, stenographer, book-keeper	$2,486 50
Cleaning, painting, repairs and contingencies	296 00
Dairy appliances, separators, vats, expenses cheese and butter judges, inspecting factories, etc	588 91
Advertising, printing, stationery, books, papers, etc	149 85
Fuel and light	600 00
Purchase of milk for cheesemaking and cost of hauling milk and cream	5,500 00
Total expenditure	$9,621 26
Less revenue	2,066 95
Net expenditure	$7,554 31

Revenue.

Sale of Cheese, 5,773½ lbs. at from .10 to .60	$1,558 38
Sale of Butter, 378 lbs. at from .20 to .58	170 21
Sale of Cream, 286⅞ qts. at from .50 to .70	144 05
Sale of Ice-Cream, 127¾ qts. at from .40 to .50	51 88
Sale of Milk, 185 qts. at .10	18 50
Sale of Skim and Buttermilk, 31,825 lbs. at .30 cwt	95 47
Sale of Wheymilk, 2,300 lbs. at .5 cwt	1 15
Sundries	9 31
Fees	18 00
Total revenue	$2,066 95

POULTRY DEPARTMENT

Expenditure.

Wages of assistant, stenographer, and temporary assistance	$4,941 00
Furnishings and repairs	1,748 28
Permanent improvements	299 86
Purchase of stock	325 21
Fuel, light and contingencies	1,553 78
Experiments with incubators, fattening and feed	11,253 30
Feed of horse	60 00
Poultry extension work	6,703 90
Total expenditure	$26,885 33
Less revenue	12,599 31
Net expenditure	$14,286 02

Revenue.

Sale of Live Poultry:—		
558 Live Birds for	$1,213 75	
914 Day Old Chicks at .10	91 40	
		$1,305 15
Sale of Dressed Poultry:—		
8,980¾ lbs. at from .18¾ to .70	2,799 78	
32 Broilers at $1.00 each	32 00	
		$2,831 78
Sale of Eggs for Hatching:—		
838½ Settings at from $1.00 to $2.00	1,585 00	
10,755 Eggs at from .6 to .13	1,159 59	
		2,744 59
Sale of Eggs for Domestic Use:—		
9879 Dozen at from .25 to .90		5,712 79
Sundries		5 00
Total Revenue		$12,599 31

HORTICULTURE DEPARTMENT

Expenditure

Permanent improvements	$482 98
Foreman, fireman, stenographer, teamsters and laborers	16,892 62
Manure, trees, plants, bulbs, implements, tools, furnishings, repairs and contingencies	4,697 01
Fuel and light	1,249 03
Feed of horses	498 00
Draughtsman, Landscape Gardening	1,500 00
Total expenditure	$25,319 64
Less revenue	2,407 37
Net expenditure	$22,912 27

Revenue.

Sale of Fruit, Vegetables, etc. as per itemized statements rendered monthly	$2,407 37

MECHANICAL DEPARTMENT

EXPENDITURE.

Salary of foreman	$1,750 00
Furnishings, repairs and tools	225 73
Total Expenditure	$1,975 73

SOIL PHYSICS DEPARTMENT

EXPENDITURE.

Services and expenses of temporary assistants in connection with Farm Drainage Demonstrations	$5,499 61

APICULTURE DEPARTMENT

EXPENDITURE.

Wages, equipment and maintenance	$2,741 44
Less revenue	66 75
Net Expenditure	$2,674 69

REVENUE.

Sale of Honey, etc., as per itemized statement rendered monthly	$66 75

FORESTRY DEPARTMENT

EXPENDITURE.

Contingencies	$997 74

SUMMARY.

	Expenditure.	Revenue.	Net Expenditure
College	$262,531 81	$83,540 69	$178,991 12
Macdonald Institute and Hall	58,556 39	28,462 61	30,093 78
Farm	37,414 74	24,967 27	12,447 47
Field Husbandry	26,714 95	....	26,714 95
Dairy	12,809 42	4,076 30	8,733 12
Dairy School	9,621 26	2,066 95	7,554 31
Poultry	26,885 33	12,599 31	14,286 02
Horticulture	25,319 64	2,407 37	22,912 27
Mechanical	1,975 73	....	1,975 73
Soil Physics	5,499 61	....	5,499 61
Apiculture	2,741 44	66 75	2,674 69
Forestry	997 74	....	997 74
	$471,068 06	$158,187 25	$312,880 81

S. SPRINGER,
Bursar Supt.

Ontario Department of Agriculture

FORTY-SECOND ANNUAL REPORT

OF THE

AGRICULTURAL

AND

EXPERIMENTAL UNION

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

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1921

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To His Honour LIONEL H. CLARKE,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of your Honour the report of the Agricultural and Experimental Union for 1920.

Respectfully submitted,

MANNING W. DOHERTY,

Minister of Agriculture.

Toronto, 1921.

Ontario Agricultural and Experimental Union

OFFICERS FOR 1921

President	J. B. Spencer, Ottawa, Ont.
Vice-President	J. W. Widdifield, M.P.P., Uxbridge, Ont.
Secrctary	C. A. Zavitz, Agricultural College, Guelph.
Assistant Secretary	W. J. Squirrell, Agricultural College, Guelph.
Treasurer	A. W. Mason, Agricultural College, Guelph.
Directors	Pres. J. B. Reynolds, J. B. Kitchen, L. H. Newman, H. K. Revell, E. T. Chesley.
Auditors	R. C. Moffatt and A. H. Porter.

COMMITTEES ON CO-OPERATIVE EXPERIMENTAL WORK

Agriculture	C. A. Zavitz (Director), W. J. Squirrell, A. W Mason, C. R. Klinck, A. E. Whiteside.
Agricultural Botany	J. E. Howitt (Director), T. G. Raynor, W. J. W. Lennox, W. C. Evans.
Forestry	E. J. Zavitz (Director), A. H. Tomlinson, H. A. Dorrance.
Agricultural Chemistry	A. L. Gibson (Director), J. A. Neilson, A. H McLennan.
Apiculture	F. E. Millen (Director), T. Shields, R. E. Oldfield.
Farm Literature	O. J. Stevenson (Director), R. R. Graham, J. P. Sackville.
Agricultural Physics	W. C. Blackwood (Director), R. R. Graham, R. C. Moffatt, F. L. Ferguson.
Agricultural Bacteriology	D. H. Jones (Director), T. H. Lund, A. Davey.

TREASURER'S REPORT, 1920

Receipts.	
Balance from 1919	$1,632 84
Government grant	2,750 00
Membership fees, 341 at 50c.	170 50
Interest	60 27
	$4,613 61

Expenditures.	
Agricultural Experiments	$2,409 62
Agricultural Chemistry	171 25
Agricultural Botany	48 25
Farm Literature	48 05
Expenses Annual Meeting, 1920	106 25
Meeting of Executive	22 45
Printing, Postage, etc., Annual Meeting, 1921	244 96
Total	$3,050 83
Balance in hand	1,562 78
	$4,613 61

Ontario Agricultural and Experimental Union

ANNUAL MEETING

The forty-second annual meeting of the Ontario Agricultural and Experimental Union was held at the Ontario Agricultural College, Guelph, on Tuesday and Wednesday, January 11th and 12th, 1921. This meeting included in all, six sessions, those of the morning and afternoon convening in Massey Hall and those of the evening in the College Gymnasium. Most of the sessions were crowded beyond the seating capacity of the hall and gymnasium. The reports and the most important discussions which took place during the meeting are embodied in this report.

SECRETARY'S REPORT.

Dr. C A. Zavitz, Professor of Field Husbandry, O.A.C., Guelph.

Since our last annual meeting the Board of Control of the Experimental Union met, not only in January and in September as usual, but in compliance with a wish of the President of the Union there was a February session held at the Ontario Agricultural College to enable the members of the Board to meet the heads of the Departments at the College and to discuss matters in connection with the further progress of the organization.

The somewhat abbreviated report of the last annual meeting of the Ontario Agricultural and Experimental Union was printed by the Department of Agriculture, Toronto, and formed sixty pages of reading matter. The fact that this was printed and distributed before seeding time in the spring of 1920 reflects credit on the Department of Agriculture, and we are grateful for the early edition which undoubtedly gave helpful assistance at a time when it could be used to excellent advantage.

Co-operative experiments were conducted in no less than eight different Departments within the past year. Not only were committees re-appointed in six branches of agriculture, as in the year previous, but this number was enlarged by the addition of a committee on Agricultural Physics and another on Bee-keeping. Two committees did only preliminary work in 1920, two other committees who reported last year consider it unnecessary to report oftener than every two or three years, and each of the other four committees will report the result of the year's work at the annual meeting.

The co-operative experimental work in agriculture has now been conducted for thirty-five years, during which time there have been 97,296 distinct tests made throughout Ontario. Each of these experiments consisted of from two to ten plots. The following figures show the average yearly number actually engaged in the work in each of three periods of from eleven to thirteen years:

Periods.	Years.	Average Number of Experimenters per Annum.
1886-1896	11	720
1897-1907	11	3,386
1908-1920	13	4,017

Owing to scarcity of labor during and since the war, the number of co-operative experiments showed some decrease but there were 125 more in 1920 than in the year previous.

It is interesting to note that the graduates of the Ontario Agricultural College for 1920 are either farming or holding positions in Canada with but one exception. There seems to be an impression abroad that a large percentage of our graduates go to the United States. While it is true that some of the highest positions in Agricultural Colleges in the United States are filled by graduates of the Ontario Agricultural College, it is also true that, of the entire number of our graduates, less than nine per cent. are in the United States, and about 86 per cent. are located in Canada. The ex-students' register, from 1874 to 1920, inclusive, has been revised during the past year and is now fairly complete. It forms an excellent source of information in connection with the co-operative work of the Experimental Union.

The work of the Ontario Agricultural College and of the Experimental Union is having a marked influence on the crop production of this Province and its beneficial results have even extended over the Dominion of Canada. According to a recent report of the United States Department of Agriculture, there are more food materials produced from farm crops, per unit of population, in Canada than in any other country of the world.

PRESIDENT'S ADDRESS.

H. K. Revell, Goderich.

This is the forty-second annual meeting of the Ontario Agricultural and Experimental Union. We welcome and invite you to join with us in the discussions on the various subjects which will be presented. The more interest you show by the expression of your opinion and by asking questions on the various topics, the more you will draw from the speakers and the greater will be the profit in these meetings for all.

This organization which has been carrying on a very great work for many years, has been spoken of as a "clearing house" for the Ontario Agricultural College. It is one of the active connecting links between the College and the farming public. If this Union, the oldest O.A.C. Alumni association, has failed to measure up to expectations, the fault surely, is not with the executive, but rather with those of the Alumni who have failed to give the Union their active support. The Union has accomplished much good for Ontario and for those results much credit is due to the committees and executives who, from year to year, have patiently and diligently striven for the good of the Ontario farmer. But the success of the past is no excuse for resting on our oars in the future.

Broadly speaking, the work of the Ontario Department of Agriculture is twofold; administrative and educational. The work of administration includes that work carried on by the Minister and his deputies and the various branches of the Department. The educational work must be based upon research and investigation, hence, is logically connected directly with the College and other Experimental Stations in the Province.

The endeavor of the Ontario Agricultural College includes, or should, research, experimental and investigational work of any matter pertaining to agriculture. I understand there is a difference in the class of work signified by these terms, hence, the reason for using all three.

There is another form of activity for the College. No matter how thoroughly organized our Alma Mater may be for the various forms of agricultural study, without ample means of imparting the information gained to the public, the College would be very much like a manufacturing organization trying to live, but possessing no sales force or other means of marketing its product.

To-day, "Commerce is King." Countries stand forth according to the extent of their commercial enterprises. This force is drawing to its fields the best brains in the world. Men of good brains like power, and nowhere can their craving for power be satisfied so well as in the management of successful business enterprises.

"The dignity of a calling is its utility." If so, what vocation has more dignity than agriculture? Farming is being more and more recognized as a business enterprise capable of employing the best brains that man can develop. This being true, the O.A.C. has before her an almost unlimited field for fruitful endeavor.

Any College or University which limits its instruction to those who are enabled to come to its classrooms, is laboring in a very limited field. Extensive residential, class and laboratory accommodation is essential. No matter how much equipment is provided, there is frequently the cry of insufficient accommodation, which indicates the trend of public march.

Great as resident instruction may be, I maintain that the day of extension service is here; that the carrying of the fruits of our investigational work, to the concessions and side lines, possesses far more possibilities than any resident instruction can possibly show. How else can the busy farmer and his family receive the benefit of our agricultural studies unless our colleges take it to them. They cannot come to the colleges, as leaving home to attend college is available only to a few.

The establishment of co-operative experiments through the Experimental Union has been one method of teaching at home; the Institutes and Farmers' Clubs have also been the means of some valuable extension service, as well as the District Representatives. The establishment of this force has been the most forward step in the matter of Agricultural Extension service that our Department has undertaken. This portion of the service could be much improved if these men had their headquarters at the College which seems the logical place from which to direct such work.

Our District Representatives are college graduates and practical farmers. Their annual short courses held throughout the Province are productive of much good. These men have such varied lines of work to handle that they feel the need, from time to time. of trained specialists in certain branches of agriculture. I understand that the Department at Toronto has difficulty in getting men for special purposes. A great work could be accomplished if the Department could have a staff of extension workers available at the College to speak at Farmers' Clubs, Short Courses, etc., on subjects of interest to both men and women. In this way, many thousands of our citizens would be reached who would receive some benefit directly from the College and this would be a step in advance and prove a splendid financial investment for the Province.

Many thousands of men in urban vocations are annually profiting from correspondence courses in all subjects. Men of all walks in life are studying their own or some other vocation, all with the idea of betterment. I believe that this idea can be successfully worked out for agriculture. The institution of systematized reading courses in those studies which lend themselves to it might be arranged in a form that the farmer and his family could profit. This would regulate their reading, and give the earnest seeker of agriculture knowledge and every guidance necessary. I do not suggest that such courses would supplant the regular courses at the College but they would reach thousands who cannot attend the long courses or even leave home for a short course.

This sort of work calls for the preparation of special books and pamphlets, and a staff to handle the work. It calls for more—it demands a different type of worker than we use in the laboratory or classroom. It calls lastly for more funds. But it means greater production for the same effort, and a greater chance to interest the younger generation in agricultural life. I am not a believer in "*Keeping* the boy on the farm," but I am a firm believer in giving agriculture as fair a chance as any other vocation. Granted this, farming will assume its rightful place in the minds of the public and secure for itself sufficient workers to maintain a satisfactory balance of labor.

J. W. Widdifield, M.P.P.: Dr. Zavitz intimated in his Secretary's Report that we are recognized by other countries as being leaders of the world in agricultural production. I believe this Experimental Union is responsible to no small extent for the world's opinion on this question of production. I really believe there is not a square foot of ground in Ontario either spaded or plowed but has produced more on account of the work of the Experimental Union. There has been a great past and there is still a great future ahead of this organization.

The importance of the Experimental Union and of the Agricultural College is evidenced by the fact that we have in attendance here students from nearly every country in the world. We are proud of our record as agriculturists. Let us extend and develop and give our greatest energy and interest to this great calling.

T. G. Raynor: I am very much impressed with the ideas advanced in the President's address. I believe the time has come for further progress along extension lines. A trained force of qualified men and women who can take the information direct from the College to Farmers' Clubs and other organizations, and to the young people in our schools can do a great deal of good. The College and the Experimental Union in the past has done extension work in the origination and distribution of the O.A.C. No. 21 barley and the O.A.C. No. 72 oats. These two varieties have added much to the wealth of the Province, and in many sections are the chief ones grown.

RESULTS OF CO-OPERATIVE EXPERIMENTS IN AGRICULTURE.

Dr. C. A. Zavitz, Professor of Field Husbandry, O. A. College, Guelph.

The Committee on Co-operative Experiments in Agriculture for 1920 consisted of five members, as follows: C. A. Zavitz (Director), W. J. Squirrell, A. W. Mason, C. R. Klinck and A. E. Whiteside. For thirty-five years co-operative experiments in agriculture have been conducted throughout Ontario. These were started in a small way in 1886 and have been increasing in importance up to the present time.

In 1920 there were in all thirty-eight distinct and separate tests, six being with autumn and thirty-two with spring sown crops. Full and definite instructions were furnished with each of the thirty-eight experiments. Information regarding the two sets of experiments as sent out to prospective experimenters and to the agricultural journals and to the newspapers of Ontario is here given.

Winter Crops, 1919-1920.

Material for any one of the six experiments here mentioned will be sent free to any Ontario farmer applying for it, if he will conduct an experiment with great care and report the results after harvest next year. The seed will be sent out in the order in which applications are received as long as the supply lasts.

	Plots
1. Testing three leading varieties of Winter Wheat	3
2. Testing one leading variety of Winter Rye and one of Winter Wheat	2
3. Testing Spring Applications of five Fertilizers with Winter Wheat	6
4. Testing Autumn and Spring Applications of Nitrate of Soda and Common Salt with Winter Wheat	5
5. Testing Winter Emmer and Winter Barley	2
6. Testing Hairy Vetches and Winter Rye as Fodder Crops	2

The exact size of each plot is to be one rod wide by two rods long. The material for Experiments Nos. 1, 2, 3, 5 and 6 will be forwarded by mail, and for the other one by express. Each person wishing to conduct one of these experiments should apply as soon as possible, mentioning which test he desires, and the material, with instructions for testing and the blank form on which to report, will be furnished free of cost until the supply of experimental material is exhausted.

Spring Crops, 1920.

The members of the Ontario Agricultural and Experimental Union are pleased to state that for 1920 they are prepared to distribute into every Township in Ontario, material for experiments with fodder crops, roots, grains, grasses, clovers and fertilizers. Fully 2,500 varieties of farm crops have been tested in the Experimental Department of the Ontario Agricultural College, Guelph, for at least five years. These consist of nearly all the Canadian sorts, and several hundred new varieties and new strains, a few of which have done exceedingly well in the carefully conducted experiments at the College, and will be used for the co-operative experiments throughout Ontario in 1920.

Each person in Ontario who wishes to join in the work may choose any one of the experiments for 1920, fill out the accompanying form of application, and return the same to the Director of the Co-operative Experiments in Agriculture at as early a date as possible. The material will be furnished in the order in which the applications are received, until the supply is exhausted. A sheet containing the instructions for conducting the chosen experiment, and the blank form on which to report the results of the work, will be sent to each experimenter at the time the fertilizers or seeds are forwarded. All material will be furnished entirely free of charge to each applicant, and the produce of the plots will, of course, become the property of the person who conducts the experiment. In return, the Committee on Agricultural Experiments desires to ask that each experimenter will sow all the plots belonging to the particular experiment which he has chosen for 1920, and that he will be very careful and accurate in his work and forward to the Director a complete report of the results obtained from the test, as soon as possible after the plots are harvested.

All seeds and fertilizers will be sent in good time for spring seeding, providing the applications are received at an early date. The supply of material being limited, those who apply first will be sure of obtaining the desired outfit. Each applicant should make a second choice, for fear the first could not be granted. The experiment selected should be indicated by using its number as given in the left hand column in the list of experiments. Further information is given on the application form which is attached.

LIST OF EXPERIMENTS FOR 1920.

GRAIN CROPS.

	Plots
1. Testing two varieties of Oats	2
2. Testing O. A. C. No. 21 Barley and Emmer	2
3. Testing two varieties of Hulless Barley	2
4. Testing two varieties of Spring Wheat	2
5. Testing two varieties of Buckwheat	2
6. Testing three varieties of Field Peas	3
7. Testing two varieties of Spring Rye	2
8. Testing three varieties of Soy, Soja, or Japanese Beans	3
9. Testing eight varieties of Flint and Dent Husking Corn	8

ROOT CROPS.

10. Testing three varieties of Mangels	3
11. Testing two varieties of Sugar Mangels	2
12. Testing three varieties of Swedish Turnips	3
13. Testing two varieties of Fall Turnips	2
14. Testing two varieties of Carrots	2

FORAGE, FODDER, SILAGE AND HAY CROPS.

15. Testing the planting of Corn at six distances in the row	6
16. Testing Sudan Grass and two varieties of Millet	3
17. Testing two varieties of Sorghum	2
18. Testing Grass Peas and two varieties of Vetches	3
19. Testing Rape, Kale and Field Cabbage	3
20. Testing two varieties of Sweet Clover	2
21. Testing two varieties of Alfalfa	2
22. Testing unhulled, hulled and scarified Sweet Clover	3

CULINARY CROPS.

23. Testing three varieties of Field Beans	3
24. Testing dates of planting Sweet Corn for table use	3

FERTILIZER EXPERIMENTS.

	Plots
25a. Testing Low and High Grade Fertilizers and Manure with Oats and Red Clover	4
25b. Testing Low and High Grade Fertilizers and Manure with Oats and Sweet Clover	4
26a. Testing Low and High Grade Fertilizers and Manure with Spring Wheat and Red Clover	4
26b. Testing Low and High Grade Fertilizers and Manure with Spring Wheat and Sweet Clover	4

MISCELLANEOUS EXPERIMENTS.

27. Testing Northern and Southern Grown Seed Potatoes	2
28. Testing two varieties of Potatoes	2
29. Testing three grain mixtures for Grain production	3
30. Testing three grain mixtures for Fodder production	3

The size of each plot in each of the first twenty-six experiments and in Nos. 29 and 30 is to be two rods long by one rod wide; in Nos. 27 and 28 one rod square.

If you wish to conduct one of the thirty agricultural experiments named on the accompanying circular, kindly fill out this blank form and return it as soon as possible.

The distribution will be confined to the choice varieties included in the various experiments. In filling out the blank form, therefore, it is neither necessary nor advisable to mention any particular variety or varieties.

All materials for experiments, with instruction sheets enclosed, will be sent by Parcel Post.

APPLICATION FOR MATERIAL FOR AN EXPERIMENT.

I would like to conduct experiment number......, but if all the material for that experiment has been applied for before my application is received, I select experiment number........... as my second choice. If the material for one of these experiments is forwarded to me, I will endeavor to

1. Carry on the test according to the instructions received with the seed;
2. Exercise care and accuracy in the work; and
3. Report the result of the experiment as soon as possible after harvest, whether successful or not.

WEATHER CONDITIONS.

The total amount of precipitation during the five growing months, from April to September, inclusive, in 1920 was almost exactly the same as the average annual precipitation for the corresponding months in the past twenty-one years, as determined by the Department of Physics at the Ontario Agricultural College. The following table gives the precipitation in each of the six months referred to for 1920 and the average precipitation for the five years, from 1915 to 1919, inclusive, and also for the fifteen years, from 1900 to 1914, inclusive:

Period	April	May	June	July	Aug.	Sept.	Total
	inches	inches	inches	inches	inches	inches	inches
1920 (1 year)..................	3.59	.65	3.19	4.73	2.13	2.19	17.04
1915–1919 (5 years)...........	2.82	3.98	3.82	3.37	4.00	2.84	20.83
1900–1914 (15 years)	2.22	2.73	2.39	3.40	2.74	2.32	15.82

It will be observed that the amount of rainfall was very light in May and comparatively heavy in July, in fact, the amount of rainfall was less for the month of May in 1920 than for the same month in any one of the twenty years previous. The July rainfall in 1920 was fully 1¼ inches greater than the average rainfall for that month over the whole period of twenty-one years.

According to the August bulletin of the Statistics and Publications Branch of the Ontario Department of Agriculture, the rainfall throughout the Province for the five months, from March to July, inclusive, was somewhat above the average for April, June and July, and greatly below the average in May. The total precipitation for the five months in 1920 here referred to was 12.5 inches while that for the average of the same months for the past thirty-eight years was 13 inches.

The mean temperatures at the College for the six months, from April to September, inclusive, for the past twenty-one years was 58.8 degrees, while that for the same months in 1920 was 57.4 degrees, showing that the past summer has been slightly cooler than the average.

Results of Co-operative Experiments.

The co-operative work of the Experimental Union has been conducted for a greater length of time and in a more extensive way than similar work in any other country of which we have knowledge. The work from the beginning up to the present time has been entirely voluntary on the part of the experimenters. The tests are conducted by the farmers themselves through the help, co-operation and guidance of the Experimental Union. The fact that this work is voluntary is probably one of the greatest reasons for its development and for its success in past years.

As in former years, the reports of the co-operative experiments for 1920 which were received at the College were submitted to a very critical examination. For the summary report which is presented at this time only those reports which showed carefulness and reliability in all the essential features were used. All reports received, whether the experiments were successfully conducted or not, are on the table before you and we invite inspection and careful examination of the same. Many of the reports have been furnished by men who have had a large amount of practical experience on the farm, have had the advantage of a good education and have had a careful training in experimental work as they have conducted successful tests on their own farms in each of a number of years. While only the good reports of carefully conducted experiments have been used for publication, many of those not included in the summary report showed that the individual experimenters must have obtained a considerable amount of valuable information from their work, and in each of a number of cases a start with choice seed has been made of varieties particularly suited to their local conditions. Unavoidable accidents sometimes occur in connection with experimental work and in some instances experimenters are unable to use the prescribed size of plots. These tests may have furnished local information but the results are not suitable for including in the summary. It is certainly true that experimenters obtain much information from the tests which they conduct, in addition to that included in the summary report such as the one here submitted.

Each experimenter who received instructions for conducting the co-operative work was asked to give his decision on the relative standing of the different varieties, fertilizers, manures, mixtures of grain, quantities of seed per acre, etc., after everything had been taken into consideration. The report here presented includes a summary of the answers to this inquiry, and is presented in the tabulated results under the heading of "Comparative Value."

VALUES OF GRAIN CROPS.

According to the Annual Report of the Statistics Branch of the Ontario Department of Agriculture for 1919, interesting information is gleaned regarding the estimated value of the principal grain crops of Ontario for that year. The following tabulated results give these grains in the order of their total market values:

Crops.	Estimated Values.
Oats	$76,572,899
Fall Wheat	35,698,096
Mixed Grains	26,403,773
Barley	19,146,902
Corn for Husking	16,400,838
Spring Wheat	13,603,841
Buckwheat	5,727,413
Field Peas	4,794,268
Rye	3,531,031
Field Beans	1,154,081
Total	$203,033,142

The total market value of all the farm crops in Ontario for 1919 was $397,238,400. It will, therefore, be seen that the market value of the grain crop for that year was about 51 per cent. of the total value of the farm crops of the Province.

One of the great objects of the Experimental Union is to establish throughout Ontario the extensive cultivation of a few of the very best varieties of farm crops. Hundreds of named varieties of grains have been carefully tested at the Ontario Agricultural college for five years and upwards. Only those varieties which have made high records and show promise of excellence are used for co-operative experiments; therefore only a very few varieties are used in these co-operative tests. There have been far too many varieties of some classes of farm crops grown in Ontario. Many of them are brought into the country by agents, and are frequently purchased by farmers who are attracted by beautiful illustrations and by extravagant advertisements. They are sold at comparatively high prices, and it has been proven that in some cases they are simply old varieties under new names. When new varieties are introduced in this way they are sometimes quite inferior to the kinds which have been thoroughly tested at the College and are afterwards used in the co-operative experiments. Farmers who pay high prices for untested varieties, which afterwards prove a comparative failure, have only themselves to blame. The Agricultural College and the Experimental Union conduct experimental work with those classes of farm crops which are now used on fully 90 per cent. of the cultivated land of the Province. Some of the varieties which are now being extensively used in cultivation are those which were introduced by, or originated at the College. Many varieties do particularly well over nearly the whole of the Province, while others do best on certain soils and under special conditions. Some of the varieties which have been introduced into the farm practice of Ontario through the College and the Union, and which deserve particular attention, are as follows: O.A.C. No. 72 and O.A.C. No. 3 oats; O.A.C. No. 21 barley; O.A.C. No. 104 and Dawson's Golden Chaff winter wheat; Wild Goose spring wheat; O.A.C. No. 61 spring rye; Petkus winter rye; Common emmer; Rye buckwheat; Canadian Beauty and Potter field peas; Pearce's Improved Tree beans; O.A.C. No. 81 soy beans; Hairy Vetches; Wisconsin No. 7, Golden Glow and White Cap Yellow Dent corn; Gold Nugget and Longfellow Flint corn; Golden Bantam sweet corn; O.A.C. No. 1 and O.A.C. No. 2 strains of Yellow Leviathan mangel; Japanese Panicle millet; Early Amber sorghum; Dwarf Essex rape; Sutton's Earliest Drumhead cabbage; Stray Beauty very early, Irish Cobbler medium early, and Dooley, Green Mountain and Empire State late varieties of potatoes; Grimm and Ontario Variegated alfalfas; White and Yellow blossomed sweet clover; and Meadow Fescue, Orchard Grass and Tall Oat Grass.

The following gives the summary results, in tabulated form, of the different varieties of grain crops tested throughout Ontario in 1920, and are worthy of careful study:

Experiments	Varieties	Comparative Value	Yield per Acre		
			Straw (tons)	Grain (bush.)	Grain (lbs.)
Oats (33 tests)	O.A.C. No. 72..............	100	1.65	50.47	1,716
	O.A.C. No. 3................	66	1.37	41.58	1,414
Six-rowed Barley and Emmer (6 tests)	O.A.C. No. 21..............	100	1.26	....	1,864
	Common Emmer	77	1.21	....	1,768
Hulless Barley (8 tests)	Guy Mayle....................	100	1.12	29.41	1,765
	Black Hulless................	71	1.10	27.41	1,645
Spring Wheat (5 tests)..	Wild Goose	100	.97	21.87	1,312
	Marquis	88	.71	16.00	960
Winter Wheat (33 tests)	O.A.C. No. 104	100	1.71	29.38	1,763
	Imp. Dawson's Golden Chaff....	87	1.67	28.45	1,707
	Kharkov......................	44	1.90	26.14	1,568
	Imp. Imperial Amber..........	75	1.63	25.21	1,513
	Yaroslaf......................	39	1.71	20.64	1,238
Spring Rye (2 tests)...	O.A.C. No. 61 Rye...........	....	.96	15.71	880
	Common Rye..................	....	.84	10.71	600
Winter Rye and Winter Wheat (4 tests)	Winter Rye...................	100	1.87	33.57	1,880
	Winter Wheat	88	1.22	24.33	1,460
Field Peas (33 tests)...	Potter.........................	100	1.60	29.77	1,786
	Early Britain..................	69	1.44	28.63	1,718
	New Canadian Beauty	99	1.76	26.80	1,608
Field Beans (14 tests)..	Pearce's Improved Tree	87	1.06	32.40	1,944
	Michigan No. 630425...........	100	1.07	30.43	1,826
	American Wonder.............	93	1.37	29.07	1,744

In the third column of the tabulated results of the grain crops here given, attention is called to the fact that the comparative value was made up from the answers received from the farmers who conducted the experiments after they had taken everything into consideration. In the fourth column yield of straw per acre represents the total crop less the amount of grain, and, therefore, includes the chaff with the straw. The yield of grain is given in pounds as well as in bushels per acre, in order to make the results clearly understood, and that certain comparisons may be made between the different classes of crops as well as between the varieties of each class in a season such as we had in 1920. Definite determinations can be made between the varieties of each class of farm crops, as they were grown on the same farm and under similar conditions. Caution, however, should be exercised in comparing one class of farm crops with another, as it should be understood that these have been grown on different farms. Owing to the great variation in the weight per measured bushel of different classes of crops, it is easier to compare the weight in pounds than in bushels of grain per acre. In working out the number of bushels per acre, the standard weights per measured bushel have been used for each class of crop.

Varieties of Oats.—According to the reports received from over Ontario, approximately 82 per cent. of the oats grown in the Province during the past season were of the Banner and the O.A.C. No. 72 varieties. Of the early kinds, the O.A.C. No. 3 appeared to be the most prominent. During the last six years the O.A.C. No. 72 variety has increased very rapidly in general cultivation throughout the Province, and it is now grown to the exclusion of practically all other kinds in some sections, and, on the whole, nearly equals the Banner in acreage over the Province.

In each of the last eight years the varieties distributed from the College for co-operative experiments have been confined to two, viz., the O.A.C. No. 72 and the O.A.C. No. 3, but in every instance the farmer conducting the experiment was asked to put in a plot of the variety which had given him the best results in previous years, as a basis of comparison. The following table gives the average yield per acre of all the co-operative tests with each of the two varieties of oats in each of the past eight years; also the average results of the 634 successfully conducted tests throughout the Province for the same period:

Varieties	Average Yield of Oats per Acre (Bushels by weight)								
	1913	1914	1915	1916	1917	1918	1919	1920	Average 8 years
O.A.C. No. 72............	52.1	52.4	52.9	47.0	45.9	54.2	41.5	50.5	49.6
O.A.C. No. 3..............	43.3	49.0	49.1	45.6	41.2	46.1	38.9	41.6	44.4

Without an exception, the O.A.C. No. 72 variety surpassed the O.A.C. No. 3 oats in yield of grain per acre. It should be remembered that the O.A.C. No. 3 matures, on an average, about ten days earlier than the O.A.C. No. 72 variety. On nine separate farms the Banner oats were used as the third variety. The O.A.C. No. 72 surpassed the Banner in two-thirds of the separate tests and in average yield of grain by 14 per cent.

In connection with the co-operative experiments it is interesting to study the results of these two varieties as tested at the College in comparison with the Banner and the Daubeney. The Banner has been the most extensively grown of the late varieties and the Daubeney of the early kinds in past years.

The following table gives the average results of these four varieties of oats for a period of fourteen years:

Varieties	Days to Mature	Percentage of Hull	Yield per Acre	
			Straw (tons)	Grain (bush.)
O.A.C. No. 72..........	110	28.1	2.18	86.2
O.A.C. No. 3	101	23.8	1.90	85.2
Banner..................	111	30.2	2.14	76.6
Daubeney...............	103	25.0	1.89	75.1

It will be seen that the Banner and the O.A.C. No. 72 mature at practically the same time, the former being about one day later than the latter. The O.A.C. No. 3 has proven to be about two days earlier than the Daubeney. The O.A.C. No. 3 is exceptionally thin in the hull, and is one of the best varieties of oats in quality of grain which we have ever grown at the College. The O.A.C. No. 72 has, on the average, about 2 per cent. less hull than the Banner. In yield of straw per acre, both of the late varieties are heavier in yield than either of the two varieties which mature at an earlier date. The yield per acre is quite marked, the O.A.C. No. 72 giving nearly ten bushels per acre more than the Banner, and the O.A.C. No. 3 fully ten bushels per acre more than the Daubeney.

It is interesting to note that the grain of the O.A.C. No. 72 variety has taken the Sweepstakes prize at our Provincial Winter Fair in each of the past five years.

O.A.C. No. 21 Barley and Common Emmer.—For eight years in succession the co-operative experiments have included the O.A.C. No. 21 barley and the Common Emmer, which have been tested under uniform conditions throughout the Province. In the experiments at the College these two varieties appear to be rather close rivals in yield of grain per acre. The following table gives the average results of the co-operative experiments in each of the past eight years, during which there were 115 distinct tests:

Varieties	Average Yield of Grain per Acre (pounds)								
	1913	1914	1915	1916	1917	1918	1919	1920	Average 8 years
O.A.C. No. 21 Barley........	1,613	1,714	2,022	1,220	1,794	2,138	1,040	1,864	1,676
Common Emmer	1,191	1,359	1,673	1,080	1,705	1,566	1,000	1,768	1,418

The results show that in every instance the O.A.C. No. 21 barley surpassed the Common Emmer in pounds of grain per acre, the average for the eight-year period being 258 pounds of grain per acre per annum in favor of the barley.

Emmer is a species of spring wheat from which there is not an easy separation of the grain and the chaff in the process of threshing. As a rule the grain and the chaff are ground together in the form of meal, which is used as a feed for farm stock. According to experimental results, the Emmer meal has about the same feeding value as meal made from barley.

Hulless Barley.—In the experiments at the College fifteen varieties of Hulless barley have been under test. As a number of these were comparatively weak in the straw, only the most promising kinds have been retained in the experiments. The Guy Mayle has been one of the best all-round varieties in the College tests. For seventeen years the Guy Mayle and the Black Hulless have been distributed over Ontario for the co-operative tests. The following gives the average results of the co-operative experiments in 1920 and in the average for the last seventeen years, during which time there were 211 separate tests:

Varieties	Yield of Grain per Acre (bushels)	
	1920	Average 17 years
Guy Mayle	29.4	24.6
Black Hulless	27.4	24.1

The Guy Mayle surpassed the Black Hulless by exactly two bushels per acre in 1920, and one-half bushel per acre for the average of the whole period of seventeen years. The Guy Mayle has a fairly stiff straw, and is considered the best over Ontario of the various kinds of hulless barley which have been tested.

Winter Emmer and Winter Barley.—There was only one successful co-operative experiment in 1920 with Winter Emmer and Winter Barley. The results were decidedly in favor of the winter barley in yield of grain per acre, the yield for the barley being very high. In 1919, in the average of four experiments, the winter emmer gave a slightly higher yield than the winter barley. The comparative results of these two grains vary considerably, according to season. The winter barley is not as hardy as winter wheat, but when it survives the winter it usually gives a high yield of grain per acre. The College has been working for years to improve the hardiness of winter barley for this Province through selection.

Spring Wheat.—The Wild Goose spring wheat gave an average of nearly six bushels per acre more than the Marquis in the co-operative experiments over Ontario in 1920. This is a greater difference than generally occurs between these two varieties. The Marquis did not do as well as usual in this Province during the last year.

In each of the past eight years the Wild Goose and the Marquis varieties have been distributed over Ontario for co-operative experiments. The following table gives the average yield of grain per acre for each of these varieties in the co-operative tests in each of the past eight years and for the whole period, including in all 124 tests:

Varieties	Average Yield of Grain per Acre (Bush. 60 pounds)								
	1913	1914	1915	1916	1917	1918	1919	1920	Average 8 years
Wild Goose	20.3	19.1	20.3	20.4	20.8	22.9	19.8	21.9	20.8
Marquis	20.8	17.8	19.1	17.2	20.1	23.1	19.0	16.0	19.1

In six out of the eight years the Wild Goose variety surpassed the Marquis in average yield of grain per acre as shown by the results of the co-operative experiments, the average for the whole period being 1.7 bushels per acre per annum in favor of the former. It should be understood that the Wild Goose is a macaroni wheat, and is not so well suited for the production of flour to be manufactured into bread as is the Marquis variety. The Marquis wheat is of excellent quality for bread production.

Winter Wheat.—According to answers received from farmers, the Dawson's Golden Chaff winter wheat is still decidedly the most extensively grown variety in the Province. It is stiff in the straw and is a heavy yielder of grain, although the flour made from this grain is more suitable for pastry than for bread production. With the object in view of improving the Dawson's Golden Chaff, especially in quality of grain, crosses were made between the Dawson's Golden Chaff and a number of varieties which are high in bread-producing qualities. A particular cross between the Dawson's Golden Chaff and the Bulgarian is the one which has made the highest record, and this hybrid is now known as the O.A.C. No. 104. It has given good results, both at the College and throughout Ontario.

In each of the past four years five varieties of winter wheat have been distributed throughout Ontario for co-operative experiments. The following table gives the average yield of grain per acre of each of these varieties for each of the four years and also for the whole period:

Varieties	Yield of Grain per Acre (Bus. by weight)				
	1917	1918	1919	1920	Average 4 years
O.A.C. No. 104	23.7	25.5	28.9	29.4	26.9
Dawson's Golden Chaff	21.5	25.3	27.0	28.5	25.6
Imperial Amber	22.9	23.0	28.2	25.2	24.8
Kharkov	19.3	19.2	23.5	26.1	22.1
Yaroslaf	17.6	21.5	23.4	20.6	20.8

The O.A.C. No. 104 gave the highest yield of grain per acre in the co-operative experiments in each of the past four years, in which there were 104 separate tests, the average for the whole period being 26.9 bushels per acre, which is 1.3 bushels per acre per annum more than that produced by the Dawson's Golden Chaff and fully two bushels per acre more than that produced by the Imperial Amber. The O.A.C. No. 104 has made an excellent record in the tests by the farmers throughout Ontario in the last four years. Grain of this new hybrid variety was entered at the Ontario Provincial Winter Fair in December last and received the Championship prize of all the winter wheats entered in competition at the Exhibition.

Spring Rye.—For ten years in succession two varieties of spring rye have been distributed over Ontario for co-operative experiments. The average yields in bushels of grain per acre in each of these years and in the average for the whole period, including in all 39 tests, are as follows:

Varieties	Average Yield of Grain per Acre (Bus. by weight)										
	1911	1912	1913	1914	1915	1516	1917	1918	1919	1920	Average 10 years
O.A.C. No, 61	17.9	26.8	20.0	25.4	18.2	42.1	22.5	20.5	27.5	15.7	23.7
Common......	16.3	24.5	15.9	25.0	12.5	36.4	20.4	20.0	23.4	10.7	20.5

Without a single exception, in the ten years the O.A.C. No. 61 surpassed the Common variety of spring rye in yield of grain per acre, the average for the whole ten-year period being over three bushels per acre per annum in favor of the former over the latter. This variety was originated at the College, and has given better results than any other variety of spring rye in the experiments at Guelph.

Winter Rye and Winter Wheat.—For five years in succession winter rye and winter wheat were used in the co-operative experiments throughout Ontario, in order to ascertain the comparative yields per acre of these two classes of grain. In 1920 the Rosen rye and the O.A.C. No. 104 winter wheat were used. In 1915, 1916, 1918 and 1919, however, the Petkus winter rye and the Imperial Amber winter wheat were the varieties used in this test. The average results, in pounds of grain per acre. are given for each of the five years, including in all 25 distinct tests, as follows:

Varieties	Average Yield of Grain in Pounds per Acre					
	1915	1916	1918	1919	1920	Average 5 years
Winter Rye.....	2,700	1,777	2,020	1,960	1.880	1,976
Winter Wheat ..	2,320	1,457	1.157	1,990	1,460	1.677

Without one exception the winter rye surpassed the winter wheat in yield of grain per acre. It has been found in experiments at the College over a long period of time that the varieties of winter rye are more hardy than even the hardiest varieties of winter wheat which have been under test.

BUCKWHEAT. In each of eleven years, two varieties of buckwheat have been grown in an experimental way by Ontario farmers. The following gives the average results for each of the eleven years and for the average of the whole period, during which time there were thirty-seven tests:

Varieties of Buckwheat	Average Yield of Grain per Acre (Bus. by weight)											
	1908	1909	1910	1911	1912	1913	1915	1917	1918	1919	1920	Av. 11 yrs.
Rye........	30.3	21.1	21.0	15.3	37.7	24.0	27.7	33.3	37.8	30.3	25.0	27.6
Silver Hull.	24.7	17.8	14.7	11.0	32.8	19.7	22.7	10.8	28.1	20.6	21.7	20.4

It is interesting to note that the Rough or Rye buckwheat produced an average annual yield of 7.2 bushels per acre over the Silver Hull variety. The grain of the Rough buckwheat is somewhat unattractive, the hull is rather thick, and the flour has a yellowish tinge.

FIELD PEAS. For five years in succession, three varieties of field peas were used for co-operative experiments and the results are presented in the following table which includes 216 successfully conducted tests:

Varieties	Average Yield of Grain per Acre (Bus. by weight)					
	1916	1917	1918	1919	1920	Average 5 years
Potter..........	22.5	21.4	25.7	22.2	29.8	24.3
Early Britain...	20.8	21.8	28.8	21.2	28.6	24.2
Canadian Beauty	22.3	21.2	25.1	21.7	26.8	23.4

The Potter variety of field peas, which stands the highest in average yield per acre for the five years, surpassed the Early Britain variety in three of the five years. The Potter variety is a medium sized white pea and produces a medium yield of straw. The grain is smooth, white and attractive in appearance.

FIELD BEANS. In 1917 and in 1918 the acreage of beans in Ontario was about double that of the few previous years. In 1919, however, the acreage dropped to about one-fifth of that of the two former seasons and, in 1920, it was even slightly less than in the year previous, the acreage for the past season being 22,744 acres, while the average for the past thirty-eight years has been 48,807 acres. It will, therefore, be seen that the acreage of beans in Ontario in the last two years has been abnormally low.

In the spring of 1920, three varieties of beans were distributed for co-operative experiments throughout Ontario. The Pearce's Improved Tree came the highest in these tests, as it did in similar experiments in each of the two previous years. The Pearce's Improved Tree bean requires a little longer season of growth than the Pea variety. In those localities, however, where it can be grown successfully, it produces a high yield of large white beans of excellent quality.

SOY BEANS. Owing to the weather conditions not being particularly favorable for the growth of soy beans in the past season, no satisfactory reports were received. In 1918 and 1919 the Habara, the Brown and the O.A.C. No. 81 varieties were distributed for co-operative experiments. The Habara gave an average of 14.7; the O.A.C. No. 81, 11.9; and the Brown, 10.4 bushels of grain per acre per annum. The soy beans, when ground, are about equal for feeding purposes to cotton seed meal. They are richer than any other grain grown in Ontario, and a small amount greatly helps the grain ration, especially for dairy animals.

GRAINS GROWN IN COMBINATION FOR GRAIN PRODUCTION.

Experiments have been conducted at the College for a number of years in succession in testing various combinations of grain for green fodder, for hay and for grain production. The results have been reported from time to time and are of considerable value. It was found that a combination of varieties of the same class of grain gave no appreciable advantage in increase of yield per acre. It was also found that certain combinations of different classes of grain gave only slight advantage, while others furnished marked increases. One of the most important results obtained was from a combination of oats and barley of the right varieties, grown in the proper proportions, which gave a yield slightly more than two hundred pounds of grain per acre over either grain grown separately in the tests which have been conducted over a series of years.

In consideration of the results here referred to, co-operative experiments were arranged in which different combinations of grain were tested throughout the Province. In an experiment which was conducted for five years and which was completed in 1909, different varieties of oats, barley and spring wheat were grown in combination of two and three kinds of grain together. The average results of the five years' co-operative experiments show that one bushel of the Daubeney oats and one bushel of the Mandscheuri barley gave a higher yield of grain per acre than any of the other mixtures used in the experiment.

In 1910 a co-operative experiment was started for the testing of three different proportions of oats and barley in order to find out which one would give the largest yields on the average, and on the different soils throughout the Province. In the results of this experiment, for seven years, the following average yields in pounds of grain per acre per annum were obtained: 1 bushel oats and 1 bushel barley, 1,691; 1½ bushels oats and 1½ bushels barley, 1,665; and ½ bushel oats and ½ bushel barley, 1,357. It will be seen that one bushel of oats and one bushel of barley, making a combination of two bushels per acre, gave on the average a greater yield per acre than either the lighter or the heavier seeding.

In experiments conducted at the College covering a period of fifteen years, a combination of one bushel of oats and one bushel of barley, by weight, produced the largest yield of grain per acre.

For a series of years experiments were conducted at the College in testing a standard mixture of oats and barley alone and with some other grain added to the mixture. As a result of these experiments, it was found that in all cases the standard mixture of oats and barley gave the highest yield of grain per acre and, when any other grain was added to these two, there was a decrease in the yield of grain. In 1918 a co-operative experiment was started with the object of trying to find out whether this would hold true throughout the Province and especially to let each experimenter find out for himself the actual facts in regard to the mixtures. No results were obtained for that year but in 1919 the results of four experiments and, in 1920, of six experiments have been secured, the average for each year being as follows:

Mixtures	Yield of Straw per Acre (tons)			Yield of Grain per Acre (pounds)		
	1919	1920	Ave.	1919	1920	Ave.
Oats 1 bushel, barley 1 bushel	1.24	1.70	1.47	1,473	2,240	1,857
Oats 1 bushel, barley 1 bushel, Golden Vine Peas ½ bushel	1.16	1.77	1.47	1,310	2,148	1,729
Oats 1 bushel, barley 1 bushel, Goose Wheat ½ bushel.....................	1.21	1.71	1.46	1,398	1,993	1,696

The tabulated results show that in yield of straw per acre there has been practically no difference in the three mixtures but, in yield of grain per acre, the oats and the barley alone have given a greater production than when either peas or spring wheat was added. The yield of grain per acre was reduced through the addition of peas by 128 pounds and through the addition of goose wheat by 161 pounds.

VARIETIES OF CORN FOR HUSKING.

Previous to 1916, two separate sets of corn, with a small number of varieties in each, were used for the co-operative experiments. In one case, the corn was studied from the standpoint of fodder and, in the other, from the standpoint of grain. In the spring of 1916, however, a change was made by which all the seven varieties of corn recommended by the Ontario Corn Growers' Association were used in each experiment and both the weight of the total crop and the yield of grain per acre were determined. In 1920, there were four satisfactory reports for grain and six for total crop. Taking the whole five-year period, the results now include twenty-two satisfactory reports for grain and thirty-four for total crop. The following table gives the average yield of total crop and of grain per acre of each of seven varieties of corn tested on Ontario farms in 1920 and in the average of the past five years:

Varieties	Average Yield per Acre			
	Whole Crops (tons)		Grain (bus.)	
	1920	Average 5 years 34 tests	1920	Average 5 years 22 tests
Golden Glow	10.48	9.61	61.43	64.88
White Cap Yellow Dent	8.87	8.99	40.00	58.89
Wisconsin No. 7	10.31	10.03	50.36	57.67
Bailey	9.20	8.73	47.33	55.57
Longfellow	8.47	8.50	52.69	53.21
Compton's Early	7.68	8.67	40.36	51.59
Salzer's North Dakota	8.19	8.16	52.14	50.75

The Golden Glow gave the highest yield of grain per acre in each of four out of the five years. Not only has it given a good yield of grain per acre but, on the average, it has also given a good yield of whole crop, yielding second to the Wisconsin No. 7 in this respect. The first four varieties on the list are Dents and the last three are Flints. It will be observed that in 1920 the Longfellow and the Salzer's North Dakota gave particularly high results and the White Cap Yellow Dent comparatively low returns in yield of grain per acre. The average results for the five years, however, form a better guide than those for a single season.

In 1919, in addition to the White Cap Yellow Dent, another strain of this variety, which was called the Early White Cap Yellow Dent, was distributed for the first time. In the results of this year's experiment the early strain gave an average of five bushels per acre over the later strain. In yield of grain per acre in each of the four separate tests the early strain surpassed the late one in two tests, was equal in the third and was slightly below in the other experiment.

FIELD ROOTS.

In 1920, co-operative experiments were conducted with mangels, sugar beets for feeding purposes or sugar mangels, swede turnips, fall turnips and carrots. There were twenty-five good reports of successfully conducted tests with field roots in the past year including eight for mangels, two for sugar mangels, seven for swede turnips and eight for carrots. The field roots still occupy an important place in the farm crops of the Province although, owing to great scarcity of labor and the increase in the acreage of corn both for husking and for silage, less roots are grown in Ontario now than formerly.

The average results of the good reports of the successfully conducted tests with field roots are presented in the following table:

Experiments	Varieties	Comparative Value	Yield per Acre (tons)
Mangels	Sutton's Mammoth Long Red	93	35.56
	O.A.C. No. 2 Strain Yellow Leviathan	100	34.00
	Keith's Prize Taker	93	33.28
Sugar Beets	Bruce's Giant White Feeding	....	20.18
	White Silesian	....	19.24
Swede Turnips	Garton's Superlative	100	29.44
	American Purple Top	100	28.28
	Ne Plus Ultra	71	27.92
Carrots	Rennie's Mammoth Short White	100	20.64
	Simmers' Imp. Giant Short White	100	19.33

VARIETIES OF MANGELS. The general mangel crop of Ontario includes four distinct types, viz., long, intermediate, tankard and globe. Those most extensively grown throughout the Province are the long and the intermediate. The globe varieties usually give the lowest yield per acre, and the chemical analyses show the roots to be somewhat inferior in quality as compared with either the intermediate or the long. The intermediate strain has given particularly good results in recent years in both the experiments at the College and in the co-operative experiments throughout Ontario. This is particularly true of the Yellow Leviathan variety.

In 1920, three varieties of mangels were used for co-operative experiments including one intermediate, one long, and one globe. The average results furnished by eight good reports show that the highest yield was made by the long red and the lowest by the globe variety. In the average of the co-operative experiments for eight years previous to 1919, the three varieties used gave yields in bushels per acre per annum as follows: Yellow Leviathan, 26.5; Sutton's Mammoth Long Red, 26.3; and Ideal, 26.2. The Yellow Leviathan is an intermediate and the Ideal, a tankard variety. In each of the past two years the Sutton's Mammoth Long Red has slightly surpassed the Yellow Leviathan.

SUGAR MANGELS. The names, sugar beets for feeding purposes, and sugar mangels, refer to the same class of roots which are intermediate between mangels and the true sugar beets. As a rule mangels have about five per cent., sugar mangels about ten per cent., and sugar beets about sixteen per cent. of sugar. The sugar mangels grow more out of the ground than sugar beets and are more easily harvested, but do not usually yield quite as much as the leading varieties of mangels.

For the three years previous to 1920, Bruce's Giant White Feeding and Carter's Improved White Sugar varieties were tested in connection with the Experimental Union work. In the average of nineteen tests made in the three years, the former gave an annual yield of 22.3 and the latter of 20.5 bushels per acre. The Bruce's Giant White Feeding has made a high record at the College, being the highest producer of fourteen varieties of sugar mangels which have been under test for the last eight years. In 1920, the Bruce's Giant White Feeding surpassed the White Silesian variety by an average of nearly one ton per acre in the co-operative experiments.

Swede Turnips. In the average of seven co-operative experiments, the Garton's Superlative surpassed the American Purple Top in yield of roots per acre, as it also did in the average of ten experiments in 1919. The Ne Plus Ultra was distributed for co-operative experiments in 1920 for the first time and it gave somewhat lower results than either of the two other varieties under test.

Fall Turnips. But little interest is taken in the production of fall turnips in Ontario. They usually yield very well but are quite subject to rot in the field and do not keep well when harvested. Only one good report was received this year and, according to this report the three varieties gave a yield per acre in the following order: Red Top White Globe, Sutton's Purple Top Mammoth, and Yellow Aberdeen.

Field Carrots. The intermediate white field carrots are very similar in their growth, although they are sold under different names by Ontario seedsmen. In the average of the four years previous to 1920, the Rennie's Mammoth Short White gave 17.8 and the Bruce's Mammoth Intermediate Smooth White 17.7 tons per acre per annum in the average results of twenty-two tests. In 1920 as the average of eight reports of successfully conducted tests, the Rennie's Mammoth Short White surpassed the Simmers' Improved Giant Short White by about one and one-third tons of roots per acre, but the two varieties were about equal in popularity.

Dates of Planting Sweet Corn.

A large amount of co-operative experimental work has been conducted over Ontario to determine which of a few of the leading varieties of sweet corn would give the greatest service for table use in the Province. Upwards of fifty varieties have been tested at the College and only a very few of the best of these have been entered into the co-operative tests. Those which have been used most extensively have been the Golden Bantam, the Stowell's Evergreen, the White Cory and the Malakhoff. Of these varieties the Golden Bantam was proven the best in every year. In each of the six years previous to 1920, only two varieties were selected for distribution, viz., the Golden Bantam of the early and the Stowell's Evergreen of the late. The Golden Bantam has proven more popular with the experimenters and has produced a greater number of ears of corn of better quality than the Stowell's Evergreen variety. The former variety is also about ten days earlier than the latter. As a result of fifty answers from farmers in 1919 as to the most extensively grown variety of sweet corn in the different counties, twenty-eight mentioned Golden Bantam, ten Stowell's Evergreen, eight Mammoth White Cory, two Squaw, one Crosby, and one Ringleader. Realizing that the Golden Bantam was giving such excellent results and that it was grown so extensively throughout the Province, it was thought advisable to confine the co-operative experiments in 1920 to the planting of the Golden Bantam on three different dates and only distribute the one variety. The seed was sent from the College and each experimenter was advised to plant the corn on three different dates, allowing two weeks to remain between each two dates of planting. The following gives the average results of nine co-operative experiments conducted in the past year:

Dates		Number of Good Ears from 50 hills
Planted	Ears ready for use	
May 19th	August 18th	166
June 2nd	August 29th	161
June 15th	September 10th	143

It will be seen that the average date on which the experimenter started to plant was May 19th. It is observed, however, that in one instance the planting started on May 4th and in another not until June 15th. According to the average, the second date of planting took place fourteen days after the first, and the third, thirteen days after the second. The corn from the second planting was ready to use eleven days after that of the first and from the third, twelve days after that of the second. The number of good ears from fifty hills was five more from the first than from the second date of planting and eighteen more from the second than from the third date of planting. In regard to flavor of the cooked corn, there appeared to be no difference between that produced from the first and the second planting, but four experimenters referred to the corn from the last planting as not quite as good in flavor as that from the earlier plantings. In answer to the question "How much time between plantings do you consider best for a continuous supply of table corn throughout the season," there was a range from six to eighteen days, the average being twelve days between each two plantings as the most satisfactory for a continuous supply of sweet corn of the Golden Bantam variety of high quality for table use. From an inquiry regarding the most extensively grown corn for table use in 1920, all mentioned either the Golden Bantam or the Stowell's Evergreen, except two farmers who mentioned Cory and one who referred to cattle corn. By Planting Golden Bantam sweet corn at different dates a continuous supply of corn for table use can be maintained. In many instances, the first planting can take place in early May or, in some instances, even in April.

Varieties of Potatoes.

It is interesting to note that the number of acres of potatoes in Ontario was approximately one hundred and fifty thousand in the average of the past thirty-eight years and in each of the years 1919 and 1920. The total yield, however, of potatoes in 1920 was nearly six million bushels greater than in the average of the thirty-eight year period. In 1920, as in each of the last eight years, an inquiry was sent to hundreds of potato experimenters regarding the most extensively grown varieties in the separate counties of Ontario. The number of varieties which were mentioned one or more times as being the most extensively grown in the different counties of Ontario are as follows: forty-six in 1920, thirty-seven in 1919, forty-four in 1918, sixty in 1917, fifty-seven in 1916, thirty-nine in 1915, fifty-one in 1914, fifty-seven in 1913, and fifty-eight in 1912. It looks as if the number of varieties is somewhat decreasing and yet, if Ontario grew only a very few of the best varieties, the yields would be greater, the quality of the potatoes better, and the prices more remunerative, as it would be so much easier to secure uniform potatoes in car load lots. In 1920, and in the average of the past eight years, the varieties of potatoes mentioned the greatest number of times as being the most extensively grown in the different counties of Ontario are as follows:

Varieties	1920	Average 8 years 1913-1920	Varieties	1920	Average 8 years 1913-1920
Irish Cobbler	164	78	Empire State	13	12
Green Mountain	110	38	Dooley	15	9
Delaware	24	28	Carman No. 1	3	9
Carman	19	23	American Wonder	7	7
Rural New Yorker No. 2	12	23	Beauty of Hebron	3	7
Early Rose	13	13	Early Ohio	3	7
Extra Early Eureka	9	13	White Elephant	5	6

In addition to the foregoing results, the Gold Coin was mentioned eight times in 1920; the Davies' Warrior, four times; Sir Walter Raleigh, three times; and the Hustler, Rose of the North, Burbank, Freeman, Early Fortune and Wellington, each twice. Twenty-three varieties were mentioned only once.

Some experimenters mentioned Carman, some Carman No. 1, and some Carman No. 3, and we recorded these exactly as reported. As the Green Mountain and the Delaware are frequently sold as the same variety, it will be seen that the Irish Cobbler and the Green Mountain including the Delaware, have been mentioned about twice as many times as all other varieties combined.

For the co-operative experiments it was decided to distribute two varieties of potatoes in the spring of 1918, viz., Irish Cobbler and Green Mountain, the former being a medium early and the latter a late variety. These two varieties have also been distributed in each of the past two years. In 1920, one hundred and sixty-eight separate tests were successfully conducted throughout Ontario with the Irish Cobbler and the Green Mountain varieties of potatoes. In order to make the experiment as reliable as possible, the seed of these varieties was obtained from southern Ontario and from northern Ontario. The following table gives the average results of this experiment in each of the past three years and for the whole period:

Varieties	Results of Co-operative Tests											
	Percentage rotten Potatoes				Percentage small Potatoes				Average Yield of Total Crop per Acre (bus.)			
	1918	1919	1920	Ave.	1918	1919	1920	Ave.	1918	1919	1920	Ave.
Irish Cobbler...	.4	.2	1.6	.7	16.7	14.0	11.1	13.9	134.3	111.1	271.5	172.3
Green Mountain .	.5	1.5	2.7	1.6	16.3	9.5	9.4	11.7	129.5	132.5	301.5	187.8

The average results of the Irish Cobbler and also of the Green Mountain variety obtained from two different sources in each of the past three years show that in 1918 the Irish Cobbler surpassed the Green Mountain by 4.8 bushels per acre while, in 1919, the Green Mountain surpassed the Irish Cobbler by 21.4 bushels and, in 1920, by 30.0 bushels per acre. The difference in the results may be accounted for by the strains of the potatoes used, by seasonal conditions, etc. The average results for the three years are, of course, the most important and show the yield of the Green Mountain to be 15.5 bushels per acre per annum greater than that of the Irish Cobbler.

In securing seed potatoes of each variety from two sources each year, care was taken to obtain the tubers as free from disease, and as true to type as possible.

NORTHERN AND SOUTHERN GROWN SEED POTATOES.

An experiment has been conducted at the College for several years in succession by testing potatoes obtained from different sources. The main sources of seed have been Southern Ontario, Northern Ontario and New Brunswick. Seed potatoes obtained one hundred and forty miles north of Guelph in the Muskoka district, near the Muskoka Lakes, have given higher yields per acre than those obtained from southern Ontario or from New Brunswick. More recently, potatoes have been obtained from Algoma, Thunder Bay and Rainy River districts and these have given good results for seed purposes.

In 1920, two varieties of potatoes were obtained from southern Ontario and also from northern Ontario and these were carefully tested in a co-operative way throughout the Province. There were in all eighty-nine good reports of successfully conducted experiments. As this is the third year of the test, the following table gives the average results for each of the years 1918, 1919, and 1920 and for the average of the three-year period:

District	Average Yield of Potatoes per Acre (Bus.)			
	1918	1919	1920	Average
Northern Ontario..........................	142.8	134.6	292.6	190.0
Southern Ontario..........................	123.9	128.5	279.8	177.4

In each of the past three years, the northern grown seed potatoes produced a higher yield per acre than the seed which was secured in southern Ontario. In all instances, the best seed available was obtained. The average results for the three years' test show that the northern grown seed gave 12.6 bushels per acre per annum more than that obtained from southern Ontario.

Fertilizers and Manures with Farm Crops.

Co-operative experiments with manures and fertilizers with farm crops have been conducted throughout Ontario in each of the past thirty-four years. For the first five years, however, the results were somewhat of a preliminary nature. Since 1889 experiments have been conducted under a general scheme and much valuable information has been secured. The results of experiments conducted through the medium of the Experimental Union in past years may be secured in booklet form by writing to the Experimental Union Secretary, Agricultural College, Guelph.

In 1920, co-operative experiments were conducted with manures and fertilizers on winter wheat, spring wheat and oats. The co-operative tests with manures and fertilizers with winter wheat belong to a series of tests started many years ago and which included not only winter wheat but also oats, fodder corn, mangels, swede turnips and potatoes. In one set of tests, the application of manures and fertilizers with winter wheat was made in the autumn and, in another set of tests, they were made in the spring. The co-operative work in the past year has been the application of manures and fertilizers in the spring to the winter wheat crop.

For the co-operative experiments the fertilizers and seeds have been sent from the College to experimenters each year. In all instances in this experiment the Nitrate of Soda and the Muriate of Potash were applied at the rate of 160 pounds per acre and the Superphosphate at the rate of 320 pounds per acre. A mixture or complete fertilizer was composed of one-third the amount of each of these fertilizers and was, therefore, applied at the rate of 213⅓ pounds per acre. As early in the spring as the land was dry enough the fertilizers were made into a powdered condition by breaking any lumps which had been formed and were applied to their respective plots. The advice to the experimenters was to apply 500 pounds of average cow manure on one plot in each test, the application being equal to twenty tons per acre. The cow manure and the fertilizers were used as a top dressing. The following table gives, not only the average results of fertilizers and manure applied in the spring with winter wheat, but also fertilizers applied with a number of other farm crops:

Kind of Fertilizer used	Average Yield per Acre									
	Fertilizer per acre		Oats	Fodder Corn		Mangels	Swede Turnips	Potatoes	Winter Wheat	
				Total	Ears				Fertilizer applied Autumn	Spring
	Exact Wt.	Approximate Cost before the war	5 yrs. 74 tests	8 yrs. 47 tests	8 yrs. 41 tests	5 yrs. 41 tests	5 yrs. 18 tests	5 yrs. 98 tests	8 years 22 tests	3 years 7 tests
	lbs.	$ c.	bus.	tons	tons	tons	tons	bus.	bus.	bus.
Nothing	... ..	....	38.9	8.2	2.7	20.6	19.6	129.2	18.9	21.0
Nitrate of Soda	160	4.80	46.3	9.4	3.1	26.5	22.5	153.4	22.7	25.7
Muriate of Potash	160	4.00	43.8	9.4	3.0	24.6	23.7	160.8	22.3	27.9
Superphosphate	320	3.92	43.6	9.0	3.1	24.2	24.7	156.8	22.4	28.0
Complete Fertilizer	213	4.24	48.7	9.4	3.2	25.4	25.0	166.3	24.1	28.0
Potato Fertilizer	320	5.52	......	......	......	......	......	167.5	....	....
Royal Canadian	320	5.60	......	......	......	......	......	164.5	....	....
Cow Manure	40,000 (20 tons)	6.00	......	......	......	......	26.9	174.7	26.3	27.8

The cost of each fertilizer given in the table represents approximately under normal conditions, previous to the war, the average cost per acre for the fertilizers as used in the co-operative experiments. The quotations were based on the factory prices for quantities of about one ton of each fertilizer. The twenty tons of cow manure would be about twelve good sized loads per acre, and manure in Guelph has been selling at fifty cents per load, which is probably about the average for the Province. It is exceedingly difficult to place a price on farmyard manure as, in most cases, it is not purchased, but is produced on the farm. Each person may place such value on the manure as he deems expedient and study the results according to his own circumstances. It should be stated that the freight on the fertilizers and the application of both the fertilizers and the manure are not taken into consideration in the foregoing statement, nor yet is there any account made of the influence of the different fertilizers and the manure upon the land after the first season, except in the later experiments. The results of fertilizers with farm crops over a series of years are studied in connection with the field experiments at the College.

Each experimenter was asked to conduct his fertilizer test on the average soil of his farm. The results here presented are, therefore, for the average soils of Ontario. On some farms the fertilizers paid much better than they did on others. Every farmer who uses fertilizer should know as much as possible about the requirements of his own particular farm. The results here presented speak in a general way regarding the use of these fertilizers under the varying conditions of the farm lands of the Province and should furnish valuable suggestions.

In the spring of 1920, arrangements were made for testing a low and a high grade commercial fertilizer and farmyard manure with oats and with spring wheat. These crops were also grown on unfertilized land in each instance in order to form a better basis of comparison. The fertilizers and the grain were distributed from the College for the various tests. In addition to this material, each experimenter was given the choice as to whether he would prefer seeding either class of grain with red clover or with the white-flowering sweet clover. The object was not only to ascertain the influence of the fertilizers on the grain crop the first year but also to secure information as to the influence of the fertilizers on the red clover and the sweet clover in the year following. Several farmers applied for this experiment but not many full reports of satisfactorily conducted tests were received. This experiment, with probably a few minor changes, will likely be conducted for several years and it is hoped that some valuable information may be accumulated.

RESULTS OF CO-OPERATIVE WORK WITH THE AGGLUTINATION TEST FOR CONTAGIOUS ABORTION OF CATTLE.

Prof. D. H. Jones, O. A. College, Guelph.

The agglutination test for contagious abortion of cattle has been recommended by various leading investigators in Great Britain, European countries, and the United States of America as a fairly satisfactory and practical method for determining which animals in a herd are likely to give trouble, either by aborting or acting as carriers of the infection, thereby causing others to abort. Thus the test should be an aid in the eradication of the infection from a herd by indicating which animals should be segregated.

The agglutination test is a blood test. About an ounce of blood is drawn from the jugular vein into a sterile glass bottle by means of a hypodermic needle or cannula. Serum is obtained from this blood, and small quantities of the serum are added to the agglutination test fluid at the bacteriological laboratory, and the findings of the test are based on what happens to the test fluid after the blood serum is added to it.

During the summer of 1920 we carried on some co-operative work in connection with the agglutination test for contagious abortion on a herd of 32 pure-bred beef cattle, including Shorthorns, Aberdeen-Angus and Herefords, and a herd of 34 pure-bred dairy cattle, including Holsteins, Ayrshires and Jerseys. The purpose of the work was to form an estimate of the efficiency of the test based on a comparison of the results of the test with the previous history of the individual cows as obtained from the herd books.

The beef herd was made up of 21 breeding cows, 2 years old or over; 8 calves and 3 yearlings not bred. The results of the test in this herd are as follows:

Breeding cows that gave a positive reaction and had history of abortion......	8	
Breeding cows that gave a negative reaction and had no history of abortion..	4	
Value of test confirmed by...................		12
Breeding cows that gave a positive reaction and had no history of abortion...	8	
Breeding cows that gave a negative reaction and had history of abortion.....	1	
Value of test negatived by		9

The group of 8 that gave a positive reaction and had no history of abortion, included a 3-year-old that had had two calves, but was now difficult to breed, and an 11-year-old that had had nine calves and was again in calf after requiring six services. There is a possibility that an invasion of *B. abortus* might have been responsible for the difficulty in breeding in these cases, though, needless to say, other factors might have been the cause. All the rest of the animals in the group had had calves, and were again in calf without any trouble, notwithstanding the fact that they gave a positive reaction.

Taking the above figures as they stand in conjunction with the abortion history of these breeding animals, the efficiency of the test is as 12 to 9, or a percentage efficiency of 57.

Calves that gave a negative reaction	8
Calves that gave a positive reaction	0

Yearlings not bred that gave a positive reaction	2
Yearlings not bred that gave a negative reaction	1

One of the two positive reacting yearlings was from a dam 13 years old that had had 12 calves and gave a negative reaction; the other was from a 4-year-old dam that had had two full-time calves and has calved satisfactorily since the test, but gave a positive reaction.

As these yearlings had been mixing freely with the herd, it is possible that those that gave a positive reaction had contracted the infection. It will be interesting to follow their subsequent history.

The dairy herd comprised 29 breeding cows, 2 years' old or over, and five yearlings not bred.

The results of the test on this herd are as follows:

Breeding cows that gave a postive reaction and had history of abortion	2	
Breeding cows that gave a negative reaction and had no history of abortion	19	
Value of test confirmed by		21
Breeding cows that gave a positive reaction and had no history of abortion	3	
Breeding cows that gave a negative reaction and had history of abortion	1	
Value of test negatived by		4
Breeding cows that gave a doubtful reaction and had no history of abortion		4
Breeding cows that gave a doubtful reaction and had history of abortion		0

It is difficult to decide in which category, for or against the test, these four doubtful reactors should be placed. Seeing that the reactions were not distinctly positive and that none of the animals had history of abortion or difficulty in breeding, the balance would appear to be in favor of the test. However, on the other hand, seeing that the tests were not distinctly negative, some may contend that the findings should be considered against the test.

If we leave the doubtfuls out of consideration and estimate the value of the test on the same basis as for the beef herd, we find the efficiency of the test to be as 21 to 4, or a percentage efficiency of 84.

Yearlings not bred that gave a negative reaction	3
Yearlings not bred that gave a positive reaction	1
Yearlings not bred that gave a doubtful reaction	1

As in the case of the yearling beef animals these dairy yearlings had been running with the breeding cows, and so those giving positive reaction might have picked up the infection.

In both these herds abortion has been occurring for years. Some seasons only a few cases were in evidence, while in other seasons the number of abortions approached an epidemic.

Seeing that in the beef herd eight out of 21 breeding cows had given a positive reaction, yet had never, according to their history, aborted or given trouble in breeding, and that one had given a negative reaction and yet had aborted, the manager is somewhat dubious about the abvisability of taking the trouble to segregate the reactors from the non-reactors.

It has been concluded by Schroder and Cotton, of the Bureau of Animal Industry, U.S., after prolonged investigation, "that cows often remain carriers of abortion bacilli long after they have ceased to abort, and that *cows that have never aborted and regularly and normally produce seemingly healthy calves, may be chronic carriers and disseminators of abortion bacilli*; and that the abortion bacillus is an obligatory parasite so far as determined; hence the chronic persistence of the micro-parasite in the bodies of infected cows, probably is the most important among the causes responsible for the propagation, the perpetuation and wide prevalence of the disease."

In view of the above and taking into consideration that the agglutination test has been shown by a number of reliable investigators—Jensen, of Denmark; Bruhl, of Vienna; MacFadyean and Stockman, of England; Surface, Mohler, Traum and others, in the United States—to be equal in value to the more difficult complement fixation test, we consider that segregation of positive reactors to the agglutination test for contagious abortion is the logical procedure, and would be of help in an attempt to eradicate the infection from a herd.

The Bacteriological Department of the College will be pleased to co-operate with anyone desirous of having cows tested with the agglutination test for contagious abortion, and will make the tests free of charge on receipt of blood samples.

RESULTS OF CO-OPERATIVE EXPERIMENTS IN AGRICULTURAL CHEMISTRY.

PROF. R. HARCOURT AND A. L. GIBSON, O. A. COLLEGE, GUELPH.

The work of the Committee acting under this head has been confined during the season of 1920 to fertilizer experiments conducted on corn, beets and tobacco in Kent County. Fertilizers are more generally used in this district than in any other throughout Ontario. The farmers of Kent and Essex Counties have persistently requested for years past that experiments be conducted locally on the main crops and soils typical of the district. For this reason it was considered advisable by your Committee to conduct a series of five plot experiments with farmers, selected and recommended by the local agricultural representative as being specially interested in the work and capable of carrying out the experiments with success. Four farms were selected for experiments on corn and beets, respectively, and two farms for experiments on tobacco. The plots were one-tenth-acre in size, and for the three crops a total of fifty plots were laid out in experiments. All the land used for these experiments had been previously dressed with barn-yard manure at the rate of ten to fifteen tons per acre.

FERTILIZER EXPERIMENTS WITH CORN.

The five-plot experiment laid out on each farm consisted of:

Plot 1. Check. No fertilizer.
Plot 2. Complete fertilizer of nitrogen, phosphorus and potassium.
Plot 3. No nitrogen; phosphorus and potassium only being supplied.
Plot 4. No phosphorus; nitrogen and potassium only being supplied.
Plot 5. No potassium; nitrogen and phosphorus only being supplied.

The nitrogen, phosphorus and potassium were supplied in the following forms and quantities:

Nitrate of soda—300 lbs. per acre, applied in two dressings of 150 lbs. each, one just before seeding and the other six weeks later.

Acid phosphate—500 lbs. per acre.

Potassium carbonate—100 lbs. per acre.

Soils. On three of the farms the soil was a drab clay, and on the fourth farm the soil was a sandy loam.

Yields. Of the four farmers selected to conduct these experiments, only two were able to report results, viz.:

EXPERIMENTS ON DRAB CLAY.

No. of plot	Treatment	Yield per Acre Grain (bus.)	Increase over Check Grain (bus.)
1	Check (unfertilized)	78.25	....
2	Nitrogen Phosphorus Potassium	135.00	56.75
3	Phosphorus Potassium	93.30	15.05
4	Nitrogen Potassium	123.40	45.15
5	Nitrogen Phosphorus	120.40	42.15

Remarks. It was noticeable that plot 4 was considerably less mature than the other plots. These results confirm observations of previous experiments, namely, that whilst nitrogen is the leading factor tending towards big yields of corn, a proper supply of phosphorus is necessary to ensure maturity.

Experiments on Sandy Loam.

No. of plot	Treatment	Yield per Acre Grain (bus.)	Increase over Check Grain (bus.)
1	Check (unfertilized)	83.30	....
2	Nitrogen...................... Phosphorus .... Potassium.....................	128.00	44.70
3	Phosphorus .... Potassium.....................	121.75	38.45
4	Nitrogen...................... Potassium.....................	109.40	26.10
5	Nitrogen...................... Phosphorus	101.60	18.30

Remarks. The soil of this experiment, being a light sandy loam, was naturally conducive to maturity, and hence the absence of phosphorus in this respect was not so marked.

The results of this experiment would appear to indicate that for corn this type of soil responds to an available supply of potassium.

Fertilizer Experiments with Beets.

The experiments carried out with beets were similar to those for corn, except for the following variations in quantities of fertilizer applied.

Nitrate of Soda—200 lbs. per acre, applied in two dressings of 100 lbs. each, one before seeding and the other six weeks later, after thinning.

Acid Phosphate—400 lbs. per acre.

Potassium Carbonate—300 lbs. per acre.

Soils. On three of the farms the soil was a drab clay, and on the fourth farm the soil was a sandy loam.

Yields. Three of the four farmers were able to report results of their experiments, all of which were on drab clay. The average results for these three experiments is as follows:

No. of plot	Treatment	Yield per Acre Sugar Beets (tons)	Increase over Check Sugar Beets (tons)
1	Check	13.19	....
2	Nitrogen...................... Phosphorus.................... Potassium.....................	15.49	2.30
3	Phosphorus.................... Potassium	14.36	1.17
4	Nitrogen...................... Potassium	12.63	.55 (decrease)
5	Nitrogen...................... Phosphorus	14.51	1.33

Remarks. The crop suffered considerably owing to the exceptionally dry season. On this account the increase due to fertilizers was not what might be expected under normal weather conditions.

FERTILIZER EXPERIMENTS WITH TOBACCO.

Of the two experiments with tobacco, one was conducted on drab clay, and the other on sandy loam. The experiments were similar to those on corn and beets, the quantities of fertilizers used being as follows:

Nitrate of soda, 300 lbs. per acre.
Acid phosphate, 400 lbs. per acre.
Potassium carbonate, 200 lbs. per acre.

Yields. The yields with these experiments are being estimated on the cured weights, which, however, are not yet obtainable.

GENERAL REMARKS.

The results of experiments conducted during one season must naturally be taken with reserve, but the results obtained in the corn experiments coincide with records of similar experiments in previous years.

It is the intention to absorb all fertilizer experiments on the stable crops of the farm conducted by this Committee in the work of the permanent soil fertility experimental fields. Two of these experimental grounds are now established in the counties of Norfolk and Welland. Plans are now under way to select a suitable site for similar work to serve the counties of Kent and Essex. The necessary attention to detail in such experimental work can be much more conveniently and adequately provided on these permanent experimental fields than in the case of miscellaneous experiments distributed over a large area.

From observations made in the Counties of Kent and Essex we are led to conclude that the system of farming practised in this district should be modified by a decided increase in the raising of livestock. Every year heavy crop yields are being removed from the soils of these counties, and notwithstanding the exceptional fertility of the soils in this area, unless the humus content is maintained by adequate quantities of barn-yard manure, the land will sooner or later fail to properly respond to commercial fertilizer treatment.

For the coming season it is proposed that the co-operative experiments conducted by this Committee be devoted to fertilizer experiments on small fruits and vegetables, organized and supervised from the permanent experimental fields in Norfolk and Welland Counties.

REPORT OF THE COMMITTEE ON FARM LITERATURE.

DEBATES AND PLAYS IN RURAL COMMUNITIES.

DR. O. J. STEVENSON, O. A. COLLEGE, GUELPH.

Judging from the results of the questionnaire sent out last year many of the plays put on in rural communities are wholly unsuitable. The best type of rural play is one that is full of wholesome humor, and one that ends happily and leaves with the audience some thought or feeling that will make life better and happier;

and not a play that is full of horse-play and pert sayings which appeal only to crude minds. The Department of English has, during the past year, made an effort to find suitable plays, and has prepared two leaflets containing short lists of plays. The first leaflet gives some general suggestions for the production of a play, and this is followed by outlines of a number of plays that are related more or less closely to rural life. The second leaflet gives the names of books from which amateurs may obtain information, and contains a list of plays which might be produced by amateurs, but which have no direct bearing on rural life.

A play was put on at the meeting of the Experimental Union last year, and two others will be presented this evening. These plays are put on, not wholly for the purpose of entertaining the members of the Experimental Union, but with the idea of showing that plays of a better class, such as those described in the leaflets, may be produced by amateurs, and that it is not necessary that a play be a vulgar burlesque in order to appeal to a rural audience. Last year "The Brown Mouse" was chosen. It is a play in four acts, and occupies the entire evening. Though it is pure comedy, yet it contains a serious message, and, to quote Herbert Quick, the author of the novel, it is "the best rural play in the business." It is encouraging to know that as a result of the presentation of "The Brown Mouse" last year there were hundreds of inquiries for good rural plays.

This year two short plays have been chosen—"The Neighbors" and "The Pros and Cons"—with the idea of presenting two distinct types of one-act plays. "The Neighbors" is rural in character, and should be easily staged and acted by amateurs in a rural community. "The Pros and Cons" is a drawing-room type of play, which requires considerable skill in acting. It is, on the whole, not so suitable a type of play for rural communities as either "The Brown Mouse" or "The Neighbors."

In regard to debates, the answers to the questionnaire sent out last year show that rural debating societies have had difficulty in finding suitable subjects for debate and have been unable to obtain assistance in preparing debates. During the year a leaflet containing a list of subjects for debates, together with suggestions for debaters, has been issued by the Department of English, and a second leaflet will be issued shortly. The Librarian at the Ontario Agricultural College has also given valuable assistance in the preparation of debates.

In order that we may obtain definite information as to the needs of rural organizations, we are this year making a detailed survey of several counties in the Province. A number of the students in the senior year have undertaken to send out a questionnaire, the replies to which will show what organizations exist in certain counties and what the difficulties are. As a result of this questionnaire they hope to be able to make valuable suggestions.

Note.—As a part of the programme for the evening the two plays mentioned above were presented. They were well acted and were thoroughly appreciated by the large audience present. The cast of characters for each of these plays was as follows:

THE PROS AND CONS.

A Drawing-Room Play in One Act.

Cast of Characters.

Brenda	Miss Hilda Rollins
Mrs. Christie, her Mother	Miss Gladys Chisholm
Evangeline, her Cousin	Miss Norah Story
Freddie, her husband	G. E. Patton

Scene—The study in Brenda and Freddie's flat.

THE NEIGHBORS.

A VILLAGE PLAY IN ONE ACT.

Cast of Characters.

Mrs. Diantha Abel	Miss Frances E. Heming
Inez, her Daughter	Miss Ada Gilchrist
Mrs. Elmira Moran	Miss Vera Douglas
Mrs. Trot	Miss J. K. Graham
Mrs. Carrie Ellsworth	Miss Beatrice Higginson
Grandma	Miss Dorothy Hagey
Ezra Williams	Donald B. Shutt
Peter—in love with Inez	J. A. Gray

SCENE—The kitchen of Mrs. Diantha Abel's home.

Stage Manager: W. M. Cockburn.
Promoter: J. C. St. John.

SEED CENTRES.

L. H. NEWMAN, SECRETARY, CANADIAN SEED GROWERS' ASSOCIATION, OTTAWA.

It is probably safe to say that nothing of greater importance to agriculture has been revealed by careful experiments than has the difference which exists in the producing ability of different varieties, strains and qualities of seed. Every practical farmer who has profited by his observations is alive to the importance of using, not only the variety best suited to his own particular conditions of soil and region, but seed belonging to high producing strains of that variety and which, in itself, excels in vitality and vigor. The enormous national importance of the use of the very best seed in every district is impelling. For many years the importance of this problem has been recognized in a greater or lesser degree by those concerned officially, and otherwise, in the welfare of the Province and many agencies have been at work with a view to effecting an improvement in the general situation. Among these agencies might be mentioned the work of the Experimental Union, Field Crop Competitions, Seed Fairs and the work of the Canadian Seed Growers' Association. While these various organizations have undoubtedly accomplished a good deal, yet we must admit that the situation is by no means in as good a position as it should be. Many may be surprised to know that investigation reveals the fact that even at this late date quite a large percentage of farmers in this Province do not even know the names of the varieties they are growing. Many continue to grow the same grain year after year admitting that their yields are not what they should be but attaching the blame entirely or largely to soil and seasonal conditions. Other farmers are continually changing their seed without law or order, and with utter disregard for results obtained in comparative trials at Experimental Stations or elsewhere. The work of the Experimental Union has done a great deal to check the indiscriminate changing of varieties and in many cases has started farmers with the basis of their supply of seed of one kind or another. Unfortunately, the farmer who is most lacking in information is not the farmer that is being reached by the Experimental Union or in fact by any of the above-mentioned organizations. How to reach this type of farmer is, and probably will continue to be, a very large and more or less insoluble problem. Looking at this question from the standpoint of a practical farmer one cannot help but come to the conclusion that the most effective and practical method by which more farmers will be brought to sow better seed each year will consist in some plan whereby seed of particularly good breeding and quality may be produced in quantity within reasonable reach of every farm, and at a reasonable price. The suggesting of any plan such as this may savor of the idealistic and may not be entirely practicable. On the other hand, if some general plan could be worked out, having the above situation as its objective, a great public service might be rendered.

In seeking to work towards such a plan it would seem advisable to utilize, as far as possible, existing organizations. Of these, probably the most hopeful are Field Crop Competitions in which several thousand farmers participate each year. These competitions, undoubtedly, have done a great deal to interest farmers in better seed, although, as already intimated, they do not reach the class of farmer who is most in need of help. They have not, so far, provided a source of high class seed of approved varieties to the extent that they might. That this fact has been fully recognized by the Provincial Department is indicated by an examination of the regulations pertaining to these Societies as recently revised. The following letter, now being issued by the Secretary of Agricultural Societies, Toronto, to local Secretaries, explains the situation clearly:

Dear Sir,—Standing Field Crop Competitions will again be held in the Province of Ontario, as in previous years. A new form of competition, however, is available this year for the first time for those who wish to enter. This competition is to be known as "The Combined Standing Field and Threshed Grain Competition." The prizes will be awarded on the basis of the combined score on the Standing Field Crop and the threshed grain. Competitors in this competition will make their entries in precisely the same manner as in the usual form of Standing Field Crop Competitions. The fields will be judged as usual, but in the case of the competition herein described the threshed grain will also be judged in the bins or sacks of the competitors, the combined scores determining the final award. The regulations governing the latter form of competition are given below in detail as follows

1. Societies that decide to conduct this class of competition will not be eligible to enter the usual Standing Field Crop Competition with the same kind of grain, but may enter the latter if held with another kind of crop.

2. There should be 13 entries to a competition.

3. The cleaned seed will be judged either in the sack or bin, on the premises of the competitor, on or before January 15th.

4. The seed used by the competitors must be registered seed, or, if this is not available, seed approved by the Provincial Seed Committee, of which I am Secretary.

5. The minimum quantities of cleaned seed to be judged in the bin must not be less than the following:

	Bushels.
Wheat	75
Barley	75
Oats	100
Peas	50
Buckwheat	50
Corn	50
Field Beans	25
Potatoes	100
Clover and Timothy	10

6. Prizes: Seven prizes will be offered in each of these competitions as follows: 1st, $75; 2nd, $60; 3rd, $45; 4th, $35; 5th, $30; 6th, $20; 7th, $10; making a total of $275.

7. All competitors in this competition are required to sow the same variety. Any one of the following kinds may be sown, viz.:

(*a*) OATS: Banner, O.A.C. No. 72, Victory, Gold Rain and O.A.C. No. 3.
(*b*) BARLEY: O.A.C. No. 21 and Mandscheuri.
(*c*) SPRING WHEAT: Marquis, Red Fife, and Huron.
(*d*) PEAS: Arthur, Golden Vine and Canadian Beauty.
(*e*) CORN: North Dakota, Longfellow, Quebec Yellow and Quebec No. 28, Wisconsin No. 7, Bailey, Golden Glow, White Cap Yellow Dent.
(*f*) POTATOES: Green Mountain, Dooley, Carman No. 1, Irish Cobbler, Early Ohio and Gold Coin.

8. Registered seed of most of the above varieties may be obtained at reasonable prices. Information *re* sources of supply may be had through this office. Where registered seed of a given variety is not available at the time of making entry, our Provincial Seed Committee will take the necessary steps to secure seed which will be acceptable.

9. Where registered seed is sown by a competitor, the Canadian Seed Growers' Association will accept the field score of the Field Crop Competition Judge and will issue certificates of registration, providing the field score warrants this. In other words, the competitor becomes automatically a member of the Canadian Seed Growers' Association, and may have his seed registered and catalogued, providing he has any for sale.

The large prizes offered for this competition are to encourage the production of high-class seed of approved varieties and in substantial quantities in local centres.

Yours truly,

J. Lockie Wilson.

Demand for Registered Seed.

A question which naturally arises at this point is: What is the demand for registered seed and what premiums over market prices may be expected for this class of seed? Perhaps this question may best be answered by saying that the market has never yet been glutted with a really superior article. At the present moment the Canadian Seed Growers' Association is endeavoring to assemble in this Province a number of carloads of registered Banner oats. Strange as it may seem, the supply to meet the ordinary demands of the trade is not going to be adequate. In spite of the fact that Ontario harvested a splendid crop of oats last season in most parts, yet when it comes to getting together in any one district a carload of registered Banner oats one immediately runs into difficulties.

During the past few years enormous quantities of seed oats and wheat have been purchased in Canada by a Seed Purchasing Commission appointed by the Federal Government, with headquarters at Regina, Sask. The duty of this Commission was to find seed grain of a certain standard for needy municipalities in Western Canada. The municipalities paid for the seed and sold it to farmers usually on time. The Commission, as well as the Department which it represents, has come to the conclusion that the time has arrived when no public or other organization is justified in facilitating the distribution of seed of a lower grade than that required by the standards set for registered seed. The following circular, issued to seed growers in the west epitomizes the conclusions of the Commission and from the office of the Canadian Seed Growers' Association, Ottawa, gives some indication of the growing interest in seed which may be officially recognized:

Ottawa, December 30th, 1920.

Dear Sir:

Mr. A. E. Wilson, Seed Purchasing Commissioner, Regina, Sask., intimates that he may be in a position to purchase a quantity of Registered Seed Oats this winter and pay the growers a premium of thirty-five (35) cents per bushel over the Winnipeg Cash Close for 2 CW Oats, basis Fort William, on date of sale. This premium to include the cost of cleaning, sacking, handling, inspection fee, delivering and billing of the Oats from your station.

Mr. Wilson may also be in a position to handle seed which, in so far as breeding is concerned, is eligible for registration, but which, on account of the presence of a few kernels of some other kind of grain, cannot go out as registered seed. If there are not more than 50 kernels of some other grains present per pound of Oats, this particular seed may be eligible to receive the official grade called "Extra No. 1." Mr. Wilson is prepared to pay for this class of Oats a premium of twenty-five (25) cents per bushel over the Winnipeg Cash Close for 2 CW Oats, basis Fort William, on date of sale. This premium to include the cost of cleaning, sacking, handling, delivering and billing of the Oats from your station.

If you have seed for sale and wish to take the matter up further with Mr. Wilson we would suggest that you get in communication with him at once. To facilitate this a form is appended below. This may be filled out as fully as possible, torn off and mailed to Mr. Wilson. A sample of your seed should be rushed forward to our office at Ottawa, giving full particulars as to its origin, etc., so that the grade may be determined officially. In sending average samples, be sure and enclose a slip in the sack, giving your name, address, name of variety, amount offered for sale, and the certificate number of the seed from which the Oats you now offer originated.

Yours sincerely,

(Signed) L. H. Newman.

Tear off here.

....

A. E. Wilson, Esq.,
Seed Grain Purchasing Commissioner,
Regina, Sask.

Dear Sir:

I am offering for sale ...... bushels of the .... variety of seed Oats. I expect to be able to ship these Oats either in sealed sacks as Registered Oats, or in sacks for which the official seed grade "Extra No. 1" has been declared by the Dominion Seed Branch, Ottawa, through the Canadian Seed Growers' Association. I am sending a small sample for your examination. If you are interested in the purchase of the seed please advise, stating price you are prepared to pay.

Yours very truly,

Post Office Address ....
Shipping Point ....

Many Seed Centres Needed.

It is an interesting and noteworthy fact that practically ideal conditions are necessary for the production of the best grade of seed. Such conditions, unfortunately, are never enjoyed by the entire Province. Looking back for the past 15 years, I should say that not more than 25 per cent. of the total cultivated area in Ontario, during average years, was favored with conditions suitable for the production of really first-class seed. Taking Canada as a whole, I find that of all samples sent in for examination, pending registration, only about 20 per cent. are good enough to merit this recognition. This fact demands that seed centres be not only numerous but be widely scattered. Some years the efforts of growers in certain centres will reward them with very little, if any, extra remuneration, while others may profit handsomely. The following year the reverse may be the case. Having in mind the demand for registered seed, together with the vagaries and uncertainties of season, the average farmer should accept as a matter of good business the general rule to sow only registered seed, to give this seed the very best opportunity, and so take a chance of harvesting a crop which may be eligible for registration and which will pay him well to handle for seed.

In practically every county in the Province of Ontario there is now a District Representative whose duty it is to encourage all sorts of progressive movements. Personally, I cannot think of any action which these officers might take which would bring quicker and more far-reaching results than by seeing to it that at least one good seed producing centre be established in each of their respective counties. If this can be accomplished. through the medium of Field Crop Competitions, well and good, but if this does not promise to work out satisfactorily steps should be taken to locate. if possible. a suitable section where high class seed of the kind most in demand may be produced to a high degree of perfection and in considerable quantity. In 1913 the Canadian Seed Growers' Association, in co-operation with the District Representatives, undertook a Province-wide campaign to establish a large number of these centres. The foundation was laid for sixty-two such centres but at the present time there are less than half a dozen which are of any consequence. Of these, probably the North Gower Banner Oat Centre, situated in Carleton County, near Ottawa, is the most noteworthy. This year this Centre will have approximately 3,000 bushels of registered Banner Oats to offer. Each year since the Centre became established there has been a very creditable lot of seed available and all registered seed has been sold at a very satisfactory premium above the current market price. The success of this Centre may be attributed very largely to the fact that it is situated within easy reach of the headquarters of the Canadian Seed Growers' Association whose officers have been able as a result to follow the work from year to year, to encourage the growers and to assist in the disposal of their product. Our experience clearly shows that a definite follow-up system is imperative. To do this efficiently, it requires more time than the average District Representative has at his disposal to give. The Province of Quebec is overcoming this situation and incidentally making rapid strides by having a special Field Crop man whose duty it is to follow up the work in the different Seed Producing Centres and see that the goods are produced.

The Agricultural School at Kemptville, Grenville County, will this year offer for sale several hundred bushels of excellent seed oats, barley and wheat. This institution in this one particular alone is destined to render an exceedingly useful service to Eastern Ontario, particularly.

There are many excellent growers of seed oats, wheat, barley and potatoes throughout other parts of the Province but these are for the most part scattered and they are working independently. In other words, when enquiries begin to pour in for seed of certain varieties which can be guaranteed to be genuine and desirable in all particulars the offerings of these men count for little.

What is really needed at the present time in this Province is an intelligent survey of the whole situation followed by a definite and clear-cut programme aiming at the production of the kinds of seed wanted, in specially chosen districts and by men whose work and products may be vouched for. It is not necessary to add materially to the present machinery. All that is wanted is a trained and experienced engineer who knows the road. The Canadian Seed Growers' Association is organized to check up the details of the work of producing high class seed, to issue certificates of registration and to attach the final seal to all sacks of registered seed merchandised. In Ontario, it has not been kept as busy as it should have been and as it is in certain other Provinces. All that is necessary is that a large number of growers be recruited, preferably in centres within easy reach of each other and their work followed up systematically so that they will not fall by the wayside.

Linked up closely with this whole question of seed production is the problem of cleaning, storing, financing and marketing. These, however, are problems beyond the scope of this paper.

G. S. Peart: We have just listened to the Secretary of the Canadian Seed Growers' Association on the subject of developing seed centres in the Province and I might say that the policy of the Association in this respect and the policy of the Seed Branch of the Federal Department are one and the same, because the Canadian Seed Growers' Association is recognized as the official organ of the Federal Department of Agriculture in promoting this important work.

In dealing with this question, there are three phases of it about which I would like to say something:

(*a*) The need of seed centres in Ontario.

(*b*) The forms these seed centres should take and their purpose.

(*c*) Registered seed production in seed centres and the value of registration in marketing seed.

As to the need of these centres in the Province, we do not need to observe very closely to appreciate the fact that the seed merchants of Ontario experience great difficulty in obtaining sufficient supplies of dependable seed grain for their trade in the Province. This is chiefly for the reason that an adequate quantity of seed grain, pure and superior in quality, is not now being produced in the Province. The seed trade, therefore, in order to supply seed grain in car lots, have been obliged to bring in ordinary grain from other Provinces in order to supply the demand for seed. I think that you will agree that it is almost impossible to-day to buy a car lot of any one variety of grain at any shipping point in Ontario. The development of seed production centres, where registered seed grain will be produced in sufficient quantity to supply in car lots, should do away with the necessity of marketing indifferent seed in Ontario.

Then again, there are between 500 and 800 local dealers in seed grain throughout the Province, who handle a small quantity each, from a few bags up to half a car. This business is usually conducted as a side line to some more important business carried on by the dealer. My experience as a seed inspector, where I had an opportunity to examine the general run of seed sold by these dealers, has convinced me that it is very often poor seed. Sometimes it is without a name as to variety, or else incorrectly named. Very often it is of a poor variety or of mixed varieties, or again it may be poorly graded or foul with noxious weed seeds. The local dealer may have done his best to secure superior seed grain for his trade, but when dependable seed has not been available to him in his own district or Province, we cannot blame him if he secures the best he can get. I claim that these seed centres, liberally scattered throughout the Province and from which registered quality of seed might be secured, would to a great extent do away with this evil.

As to the total quantity of seed grain that is sown annually in Ontario, I wonder how much of it will test properly cleaned for sowing. Also, what percentage of the seed is of the most productive varieties for the district in which it is sown. When we consider that at least eight million bushels of cereal grain are sown annually in the Province, these questions are most vital to agriculture in the Province.

A few years ago, the Seed Branch conducted an investigation with a view to ascertaining the general quality of the seed grain that was being sown in the Province. Samples were secured by seed inspectors directly from seed drills while seeding operations were under way on the farms of the Province. The result of this investigation is history and need not be repeated, except to say that it was found that the average quality of seed grain sown was weedy and poorly graded. Furthermore, at that time, only a comparatively few farmers could name the variety they were sowing. Needless to say, the development of seed centres in which registered seed would be produced as described by the Secretary of the Canadian Seed Growers' Association should have considerable effect in causing more good seed to be used generally throughout the Province. Their effect, moreover, would be felt most in the immediate district in which the seed centre is located. Consequently we should encourage their development, at least one in every township, throughout the Province.

I believe there is room for two sorts of seed centres to provide superior seeds to the best advantage to Ontario farmers, namely, local seed centres and then, as an outgrowth of the local centre, the commercial seed centre. From the standpoint of market economy, the local centre should supply local requirements in so far as possible. We cannot get away from the fact that seed production depends on successful seed marketing and successful seed marketing depends on public demand and public demand in the case of seeds will be determined to a large extent by the cost of the seed to the purchasing public. Now, there would appear no better method of keeping the cost of good seed within the range of the average farmer's pocket-book than by supporting a policy of local seed marketing, in other words, by encouraging the local seed growers to sell to their neighbors, because overhead charges in marketing are kept at a minimum where this is done. Consequently, the buyer should be able to secure the seed at a more reasonable price. Then again, the fact that the average farmer would have incentive to purchase this seed, if within driving distance, and could take his own bags along to get it at his convenience, would encourage him to buy it. The supply would be at his door and available to him at the lowest cost and he could procure it with a minimum of effort.

The foundation for these local centres of production of registered seed has been well laid by Field Crop Competitions, which have been conducted by the Agricultural Societies of the Province during the past few years. The competitions have assisted in encouraging the use of better seed in the districts in which they have been held. On the foundation thus laid, the production of seed eligible for registration might be increased and thereby improve the quality of seed produced in these competitions, as well as increase the quantity for seeding in the locality in which the competition is conducted.

Now let us consider the commercial seed centre in regard to supplying the seed trade of the Province with seed of improved quality and recognized breeding. For one reason or another there is seldom a year when some districts do not have poor crops or crop failures. This is where the commercial seed centre could serve to supply this need with registered seed grain. Then again there is the annual spring demand from large numbers of farmers throughout the Province, who act on the principle that "far fields look green" and desire to change their seed. I believe it to be in the interest of these farmers and of Ontario agriculture that commercial seed production centres be encouraged so that they might provide for that trade, seed eligible for registration, rather than make it necessary for the trade to continue to supply indifferent seed.

I believe that the development of commercial seed production centres will be dependent upon community seed cleaning and marketing organizations in order to adequately clean and grade the seed produced and standardize it for market. This might very well be done by the growers of the centre forming a local co-operative marketing company.

There seems to be a good deal of misunderstanding with regard to the value of producing registered seed on the part of farmers who would become seed growers. The Secretary of the Canadian Seed Growers' Association is the official seed registrar recognized by the Federal Department of Agriculture, which Department is responsible in Canada for devising and putting into effect measures of seed control and standardization which will be to the advantage of Canadian agriculture and make the basis on which seed growers may market their seed with maximum satisfaction. The registration certificate of the Canadian Seed Growers' Association is recognized, not only by the Federal Department, but throughout Canada and other countries, as representing the highest grade and best quality of seed that is produced in Canada. The grower who produces registered seed secures the advantage of the registration certificate in marketing his seed, which advantage is sufficient to ensure a fair premium over prices for ordinary grades as prescribed by the Seed Control Act of Canada.

In order to point out further the confidence in which the Canadian Seed Growers' Association is held, allow me to call your attention to a recent event of international importance in the seed growing world. At a conference of the Seed Crop Improvement Organizations of the United States, held at Chicago during the Fat Stock Show in 1920, the Secretary of the Canadian Seed Growers' Association was elected Chairman of a Committee to work out a system of general standards for seeds on the American continent. This may be interpreted to mean that the standards of the Association are at least equal and perhaps superior, to those of any other seed growing association on the American continent.

SEED CLEANING PLANTS IN ONTARIO.

F. C. Hart, Department of Agriculture, Toronto.

The Secretary of the Experimental Union has asked me to make a few remarks with reference to the Act passed at the last session of the Legislature regarding loans to co-operative associations for the purpose of assisting in the establishment of seed-cleaning plants throughout the Province.

At the outset a few figures may be illuminating. These figures, of course, are only approximate, but are accurate enough to illustrate the situation. According to the Statistical Branch there are five and a quarter million acres of grain planted each year in the Province of Ontario; these crops consist of wheat, barley, oats, beans, rye, buckwheat and flax. There are, in the Province, about 650 flour and grist mills. There are also 500 power seed and grain-cleaning machines. With regard to these 500 machines, it is estimated that between 75 and 80 are used exclusively in the flax mills, 100 are used in the seed houses for cleaning grasses and clover seeds and almost all of the remainder are used as grain cleaners in the elevators and flour mills but not for cleaning the cereal seeds.

These figures would indicate that for the planting of the five and a quarter million acres of grain every year, a very small proportion of the seed used ever goes through a power machine. The most that can be said perhaps, is that the great bulk of the seed has had but a passing acquaintance with the fanning mill, the result being, of course, that the yield per acre of our cereal crops is very materially lessened.

I am of the opinion that if every community throughout the Province had a power seed-cleaning machine at its disposal, such machine would pay for itself many times over each year in the increased yield per acre alone.

But it should be recognized that seed production is a sideline and not a major operation on the farm. By that I mean, that the great bulk of our cereal grains is produced for the purpose of feeding live stock or for marketing as grains and not grown for the production of seed. Only a small portion of each crop produced is used for seed purposes. The importance of good seed, of course, cannot be overestimated, but to encourage the use of better seed might I suggest that if we turned our attention to the system of marketing the grain crop on a more satisfactory basis such better system of marketing would demonstrate, from a financial standpoint, the benefits of good seed, and in this direction possibly lies the solution of a more general use of high class seed than obtains at the present time.

In our Canadian west and in some States across the line, the local elevators are very largely owned by the farmers themselves. In the Province of Ontario, however, with few exceptions, local elevators are not farmer owned, the result being that the local marketing of grain is not on a basis satisfactory to either the grower or buyer. The grain is sold by the grower at a flat price and not on a graded basis and the careful grower shares his returns with the careless producer so that each is receiving the average price. If such local elevators were co-operatively owned, a grading machine installed and the producer paid for his deliveries on the basis of *graded* grain delivered, taking his screenings home with him, this would result in a local system of marketing much more equitable than the present system. The size of the farmer's cheque made on the basis of his delivery from the business end of the grading machine, would materially affect his appreciation of the importance of the quality of the seed he sows.

Aside from the advantages from the seed standpoint of such a system of local marketing, there are many other desirable features involved. Such a system, for example, affords a much easier market. That is to say, the buyer is looking for such grain and the seller does not have the same difficulty in seeking a market for his produce. There are many other such business advantages to be obtained where the local elevators are farmer owned. I mention this matter of the marketing of grain not only because of its influence in bringing home in a practical financial way the benefits of good seed but also to afford a business organization through which the seed business as such, can be put on a commercial basis. That is to say, the volume of seed produced in a section is, in many instances, not great enough to carry a respectably sized seed business. Where it can be handled, however, in connection with grain marketing this difficulty is overcome. The seed and grain businesses are interdependent and where carried on together, the main part of the business, which is grain marketing, will largely carry the overhead.

With seed the farmer is both producer and consumer and there is no reason why he should not also be his own middleman. Even where it is impossible to establish or take over the local grain marketing, it appears to me that there is room for every community in the Province, with the expenditure of very little money, to have a proper seed-cleaning machine. A small building could be rented and perhaps $1.000 to $1,500 expended in the purchase of a small gasoline engine and seed-cleaning machine. Even where there is not an operator who could handle such machine to the best advantage the results would be much more satisfactory than where all the seed in the community simply goes through the individual fanning mill.

A short while ago I stopped off at the Village of Cottam in Essex County and saw a practical demonstration of what I have been trying to outline. The manager of the local organization of farmers at that point is here to-day and will, I think, bear out the statements I have made above.

With regard to the Act, provision is made for loans to co-operative organizations incorporated under The Ontario Companies Act. Loans are made up to

50 per cent. of the value of the property on which the loan is made and each loan cannot exceed $3,000. The loan is without interest for two years, after which the interest is at six per cent. Half the loan is repayable in five years and the other half at the end of a further period of five years, with the privilege of repaying the loan at any time.

There are in operation many organizations for the purpose of encouraging the use of good seed, and the value of Field Crop Competitions, Seed Centres, Canadian Seed Growers' Association, and similar organizations, is inestimable. It was stated this morning that some 60 seed centres had been organized, but that only half a dozen are still in existence. I would say that in spite of the fact that very few are operating at the present time, their organization has certainly been well worth while in arousing interest in connection with the production of good seed. The Act referred to above may not be of very great financial assistance, but if it arouses interest in the seed question, it, too, will have been worth while.

Every producer in an academic way at least, recognizes the value of good seed, and I draw attention to the co-operative system of local grain marketing as possibly the direction in which we should look for the solution of putting into practice, to a larger extent, this belief in the value of good seed. Might I, therefore, suggest that if the seed centres were operated in connection with some other business concern in the locality it would be of great assistance in establishing these seed-cleaning plants in the rural parts of the province. It appears that if this question of grain marketing on a co-operative basis were established a natural and inevitable result would be the general use of better seed.

OPERATION AND RESULTS OF A SEED-CLEANING PLANT IN ESSEX COUNTY.

R. A. Jackson, Manager, Cottam Farmers, Limited, Cottam.

I appreciate the honor shown the Cottam Farmers Limited, in that anything we have been able to do is considered worthy of attention by the Ontario Agricultural and Experimental Union. We feel honored that our Association should have its work recognized by the Experimental Union, an organization which has always stood in the forefront in all matters of seed improvement.

In the summer of 1919 we, as a company, found ourselves in trouble. We had shipped a considerable quantity of wheat, much of which had failed to grade, and we were losing money on this side of our business.

The wheat last year, at least in Essex County, was of very inferior quality, containing weed seeds, much of which was chess. We tried to remedy this condition by buying a receiving separator and cleaning all the wheat before it was weighed and letting the producer take home the cleanings from his wheat.

The thought in our minds at that time was "that prevention was better than cure," and that if we could get a machine capable of cleaning seed grain and could get the farmers to have their seed wheat cleaned at our plant, the next year's wheat would be much improved. We looked for and found such a machine, a machine capable of cleaning seed grain and also able to clean from 200 to 300 bushels per hour for commercial purposes. I might say right here that capacity is entirely a relative thing, and depends largely on the quality and cleanness of the seed on which you are working. Separation is made by screens through difference in size and shape of grain, and by air-blast through difference in weight. If the grain or seed to be cleaned has a large plump berry with a small percentage of refuse seed, etc., the screens let through their meshes all, or practically all, that should be eliminated in that way, even when a large quantity of grain is passing over them. If, on the other hand, the seed is of poor quality and carries a large percentage of waste, the screen will be working to capacity and yet produce only a small quantity of good seed. Our machine is equipped with travelling brushes below the screens, which keep them free, prevent clogging, and very much increase the capacity. The air blast is very important, and, in our machine, passes from below upward through the curtain of grain. It is controlled by what is known as the "Variable Air Regulator." This device enables one, by merely turning a hand wheel, and with no change of belts, to get a blast ranging all the way from too light to clean timothy seed to a blast that will blow beans or corn directly through into the dust-room at the rear of the machine.

The machine makes five separations; the first consisting of all scalped off by the top screen; the second, of what will go through the bottom screen—broken seed, chess, etc. The third and fourth consist of all seeds of the same size and shape, but lighter than the grain being cleaned. The third is the heaviest portion, and is considered worth saving. The fourth is the lightest portion, and is blown through into the dust-room. With our machine, where the air-blast can be regulated to a hair, this separation can be made as thorough as wanted. The fifth class is the cleaned grain, and if the various parts of the machine have functioned rightly, it should be largely clean, plump, heavy seed.

To get the best results from any cleaner it must be run at a uniform speed. Ours is driven by the same motor that operates the elevators. It is also important to get a steady flow of grain at the hopper of the cleaner. The control of this hopper should be as nearly automatic as possible. It will then give the operator more time to attend to the other parts of the machine requiring regulation. Our cleaner is set above the weigh scales, and above the cleaner is a bin or hopper which is fed by elevators, so that the small hopper on the cleaner is always full, and one need not give this much attention. The cleaned seed or grain can be run direct to the weigh scales or, by closing a panel in the chute, it will run to the bagger. All the refuse worth saving taken from the grain in the process of cleaning goes down chutes that are fitted to hold bags. Directly behind the machine is the dust room where a great deal of the chess and other light seeds are driven by the air blast. We have in our warehouse two main elevators. The first carries the grain to the hopper above the cleaner or, if desired, direct to the scales. The second takes it from the scales either to bin or car as required. Last summer we installed a third small elevator intended for handling seed only. We made this elevator and hopper very carefully and can handle the finest seed without loss through leakage. This also enables us to clean seed at the same time as we are receiving coarse grains that do not have to be cleaned.

Regarding the results obtained in 1919, we cleaned about 4,000 bushels of seed wheat. We took from the dust room behind the cleaner during that time about 300 bushels of refuse besides that which the farmers considered worth while taking home. Of this quantity, probably two-thirds or 200 bushels would be chess. If you come to Cottam any day during the wheat cleaning season, I will show you more chess in a single pile than I used to think there was in the whole of the

Township of Gosfield North. That the results have been beneficial no one will doubt. I have wondered how much wheat could be grown from the fertility which was required in growing this chess.

I do not mean to say that, if we had not been operating our plant, all wheat would have been sown without cleaning at all. Anyone operating the elevator the year before the cleaner was installed and the year after its installation would have seen a very marked improvement in quality and cleanness of the wheat offered for sale. I am satisfied that fewer farmers own fanning mills in Gosfield North than was the case ten or fifteen years ago, when all grain had to be cleaned before being put on the market. It is impossible to get the same results from a small hand-power cleaner as can be obtained from a power driven cleaner. It is seldom that a farm mill is in good shape or that the necessary time is taken to do a good job.

The labor situation at the time when fall wheat is sown makes it practically impossible to give the same time and care in cleaning that is given in the cleaning of spring grain during the slack time in the winter. As would be expected, therefore, we do not clean nearly as great a quantity of spring sown grains as of fall wheat, but at that we did more than we expected this last spring.

Last fall not nearly as much wheat was sown but practically all those that had wheat cleaned the previous fall and who intended sowing wheat came back and had their seed cleaned. We cleaned about 1,600 bushels this last fall and, according to acreage sown, I am sure we cleaned a larger percentage than last year. This fall we cleaned some small seed, chiefly timothy and clovers, there being probably 300 bushels of the former and 100 bushels of all the other small seeds.

There is one side of this question I would like to touch upon and that is the cleaning of grain before weighing thus permitting of buying on a quality basis. A certain type of farmer thinks that if he is able to sell his dirty wheat at an elevator and get the same price as his careful neighbor receives for good grain. he is doing good business. In one way he certainly is putting it over the other fellow. Both lots of wheat are bought at the same price and loaded into the same car, and the price paid will be on the basis of that which the elevator people can obtain from such a grade of wheat resulting when both lots of wheat are mixed together. But the matter does not end there. When it is unloaded at the mill it must be cleaned before milling. And what becomes of the refuse screened out? Do you suppose the mills can afford to lose these screenings that they have bought at wheat prices? No, if you have handled mill feeds, you have surely noticed on the bags, "Bran with ground screenings not more than mill run." Consequently, when the two farmers buy mill feeds they will get back the screenings ground and mixed in, and they will pay a price for them that will cover freight to and from the mills and also include profit.

There is, I believe, a new act in effect or coming into effect regarding mill feed, that forbids mixing in screenings. If this is right the millers will have to buy wheat on a quality basis, and this basis will include freeness from weed seeds, light grain and other refuse.

It has looked a trifle like discrimination for us at Cottam to clean all wheat before weighing, while all around us it is being taken in just as it comes from the machine, but we have had very little complaint. The average right thinking farmer does not want to sell dirt and weed seeds for clean wheat. The careful farmer benefits in the end. All wheat is cleaned and bought on the basis of clean wheat and a farmer knows that if he has a clean product it will not be thrown into the same car as the poor stuff and thus have its value reduced. If his product is poor, however, it will be cleaned and brought up to a standard before being weighed and he will have the refuse on his hands. This is the basis on which all grain should be bought to encourage the careful farmer.

During the present wheat season we have bought at the Cottam elevator forty-three cars of wheat, making a total of approximately 50,000 bushels of wheat, all of which was cleaned before it was weighed. Elevators around us were afraid to sell to the export market because of failure to make the grade. We were selling for export at a better price and having practically no trouble with the grade, in fact, one of the largest exporters in Canada told me that we had the best and most uniform material of any firm that had sold to them this year.

Viewed from all angles, has the business been a success? In answer to this question, any director of the Cottam Farmers, Limited, will tell you that, without exception, the buying of a cleaner was our best and wisest act.

MR. GRANT S. PEART: I am sure that the Cottam Farmers, Limited, has done a good deal to illustrate that the community seed cleaning plant, in one form at least, has been successful in that district and gives us reason to believe that this form of plant, if modified to suit varying conditions and put into practice on the same basis in other districts of the Province, will yield good results. I, for one, am strongly in favor of the community seed cleaning plants to clean the seed grown throughout the Province, such plants and their operation to be controlled by the farmers themselves.

I would like to point out in regard to the success of the project at Cottam, however, that it is linked up with another business, which business is grain marketing and which is of chief importance so far as carrying the overhead expense of their plant is concerned. I believe, in most cases throughout the Province where seed cleaning plants are established, that it will be folly to try to promote them as individual enterprises as it would involve too much overhead expense for the benefit which would accrue to the average farming community. It would not be advisable to encourage the placing of such a plant in districts which would not be built up as commercial seed centres unless the seed cleaning equipment were connected up with other co-operative enterprises. There are many districts in the Province where Farmers' Clubs are already organized on a co-operative basis, where they have taken over warehouses, and in some instances have installed a grinding machine. Where communities have already gone that far then the addition of suitable machinery for cleaning seed grain and other seeds for the community would be feasible.

There are half a dozen communities throughout the Province where seedsmen have seed cleaning plants and by cleaning the seed for the farmers in that district they have done a great deal to build up agriculture, by reason of their zeal and unselfishness toward farmers. I do not think we should encourage the development of seed cleaning plants where such service is already being rendered, but if the farmers in a district want to take it up, all well and good.

These seed cleaning plants have promoted better seed throughout the country, and we have received so many inquiries from Farmers' Clubs throughout the Province of Ontario, and also the Province of Quebec and the Maritime Provinces, asking for plans and specifications of seed-cleaning plants, that it has been decided to draft blueprints. From our investigations, we now suggest one type of building that might fit in as a general seed and grain marketing plant in some parts of the Province. I also understand that the Ontario Department of Agriculture has prepared three types of seed-cleaning plants, ranging from the cheaper type of construction to more elaborate and costly designs. These would be suitable for carrying on a commercial business in seed cleaning and marketing. I think many Farmers' Clubs and organizations should install such machinery for providing service of custom cleaning of seed in their neighborhoods. If they contemplate building a warehouse or installing cleaning machinery, it might be an advantage to get copies of these plans from the Ontario Department of Agriculture, Toronto, and the Seed Branch, Ottawa.

A MEMBER: What is the cost of an outfit?

MR. PEART: It depends on the size of the machine you install and the equipment. If you have the necessary engine, belting and shafting, then I think the cost would be between $800 and $1,000 for the machine alone at present prices. If an outfit is to be installed in connection with an elevator where binning and storage capacity is already provided, the cost of the elevating machinery, shafting, belting, machine, and installation would be around $3,500, at present prices.

SWEET CLOVER AS A FARM CROP IN ONTARIO

DR. C. A. ZAVITZ, O.A. COLLEGE, GUELPH.

I am glad to have this opportunity of opening the discussion on sweet clover as a farm crop in Ontario. We started experiments with the common white-flowered biennial sweet clover at the Ontario Agricultural College in 1891 and have made definite determinations of the yield per acre of the green crop and of the hay produced from sweet clover in each of nine separate years. The yield of green crop and also the yield of hay in tons per acre of these tests conducted in the experimental plots have been as follows:

Years	Green Fodder (tons)	Hay (tons)
1892	30.65	6.88
1895	9.52	3.88
1897	18.00	5.44
1899	15.83	5.05
1900	18.00	4.50
1904	28.30	8.10
1916	17.08	3.28
1917	12.95	3.01
1919	14.21	4.64
Average 9 Years	18.28	4.98

It will be seen that both the yield of green fodder and the yield of hay per acre were large. The yield of cured hay amounted to 27.2 per cent. of the green crop in the average of the nine years' experiments.

In the earlier stages of this experiment the crop was cut at different dates when quite young and succulent with the object of feeding it to cows and to bulls while in the stables. The bulls were in the stables continuously and the cows were brought in from the fields for short periods at milking time. The animals refused to eat the green sweet clover. In later years, however, it was found that farm stock would relish the sweet clover after becoming familiar with its characteristic bitter taste.

A duplicate experiment has been carried on at the College in each of two years with nine lots of white blossomed sweet clover obtained from different sources in Canada and the United States and of seven lots of the yellow blossomed sweet clover obtained from Canada, the United States and Europe. The average results of the two years' experiments with these different lots of sweet clover in tons of green crop and in tons of hay per acre per annum are as follows, respectively: white blossomed 14.3 and 4.0 and yellow blossomed 11.0 and 2.4. It will, therefore, be seen that the white blossomed variety produced the greatest yield; 1.6 tons of hay per acre per annum more than yellow sweet. With only one exception each lot of white blossomed surpassed each lot of yellow blossomed sweet clover in productiveness in the average of the two years. Of the seven lots of yellow blossomed sweet clover, the two lots of albotrea came fifth and sixth in comparative yield per acre.

The sweet clover which is now grown in Ontario originated from mass selections of the wild plants. The wild plants vary considerably in different characteristics. Realizing the importance of securing better varieties or better strains of sweet clover than those now being used in Ontario, rather extensive work in plant breeding with sweet clover was started at the College a few years ago and will be continued for some time. In the spring of 1915, a nursery plot, one acre in size, was planted by hand with sweet clover seed so that the individual plants would be thirty inches apart each way. This would make in all nearly seven thousand plants on the acre. The nursery plot consisted of seven distinct species and numerous strains or varieties from different parts of Ontario, the United States and Europe. From this acre, choice plants were selected and the best seed from these was planted in 1917 in another nursery plot of one acre by having the plants forty inches apart each way or allowing for four thousand plants in all. The choice plants were again selected from the second nursery plot and seed from ten of the best plants of different characteristics are now being tested in our experimental grounds. We are, by this method of plant improvement, endeavoring to secure strains of sweet clover of different habits of growth. We hope, therefore, before long to have distinct strains of sweet clover which will be suited to different purposes and will prove of real service to Ontario.

From certain observations made a few years ago, we came to the conclusion at the College that sweet clover seed contained quite a large number of hard seeds which were very slow in germinating. This was particularly true in the case of seed which had not been hulled. In July, 1917, in connection with our plant breeding work, we planted in the field scarified and unscarified seed of each of sixteen lots of sweet clover. Of each lot we put in one hundred unscarified seeds in one row four rods long and one hundred scarified seeds in each of four rows four rods in length. On May 23rd, 1918, the plants were carefully counted and it was found that, with only one exception in the sixteen different lots, the scarified surpassed the unscarified in percentage of plants, the average for the former being 42 and for the latter 16. It will, therefore, be seen that the scarified gave fully two and one-half times as many plants as the unscarified seed. Since that time, a number of laboratory determinations have been made and it has been found in all instances that the scarified seed has made a higher percentage of germination than that which was not scarified. When sweet clover seed is threshed with the clover huller, a large amount of scarification takes place and there is not the same necessity for running the seed through a scarifying machine. When sweet clover is threshed with the ordinary grain separator, however, it is found that the unhulled seed is likely to be low in germination and that which is hulled somewhat higher, but, in both cases, the germination is considerably increased when the seed is run through a clover huller or through a scarifying machine.

Sweet clover as a pasture crop is sure to occupy an exceedingly important place in Ontario. The general practice is to sow sweet clover with grain as a nurse crop in the spring and to pasture the sweet clover in the autumn and throughout the following year. Even when the crop is intended for hay or for seed it is frequently pastured in the autumn and sometimes to a limited extent in the spring.

Some years ago, extensive experiments at the College were conducted for a series of years in testing various kinds of farm crops as annual pastures. Sweet clover was not included in this test. Of the fourteen separate crops tested in this way the largest amount of pasture was produced by oats, red clover, hairy vetches and sorghum in the order here given. As a result of using various combinations it was found that a mixture of 51 pounds of oats, 30 pounds of sorghum, and 7 pounds of red clover was one of the most appetizing and productive combinations to use as an annual pasture. When sown early in May the crop was ready to pasture about the third week in June or from five to seven weeks after the seed was sown. The crop formed a natural rotation of pasture, the oats furnishing the growth at first, the sorghum later and the red clover in the autumn. The sorghum seed, however, was rather expensive and of uncertain germination. Recently, we have been testing combinations of oats and sweet clover for pasture purposes and these are very promising. The sweet clover largely takes the place of both the sorghum and the red clover as it grows rapidly and abundantly and follows closely after the oats, furnishing pasture for the remainder of the season. The mixture which is likely to give particularly good results as a pasture crop six weeks after sowing in the spring is as follows:

Oats	80	lbs. per acre
White flowering biennial sweet clover	20	"
Total	100	"

In the following year the sweet clover crop could be used as pasture, silage, hay, seed or green manure as desired.

The details of these and other experiments conducted at the College as well as a summary of reports from hundreds of Ontario farmers giving the results of their practical experience with the sweet clover crop will be issued in Bulletin 283, copies of which may be obtained from the Department of Agriculture, Parliament Buildings, Toronto, Ont.

SWEET CLOVER AS A HONEY PLANT.

PROF. F. E. MILLEN, O.A. COLLEGE, GUELPH.

In the United States, sweet clover has been recognized for many years as a very valuable honey plant by the beekeepers, in those sections where it was grown in sufficiently large acreage to yield surplus honey.

In Canada, and especially in Ontario, there has been considerable controversy as to whether sweet clover was of value to the beekeepers as a surplus honey yielder.

A number of our prominent beemen argued that for some reason sweet clover did not yield a surplus in Ontario. It is quite possible, that until the last two or three years, there was not sufficient sweet clover grown in any one section of the Province to make a noticeable difference in the surplus honey crop. To be of much value to the bees, a large acreage of any one nectar yielding plant must be sown. While it is not known how many acres of any of our heavy honey yielding plants have to be sown to provide a surplus honey crop, experienced beekeepers know that a few acres are not sufficient for a commercial apiary to yield a surplus.

Two other important factors relating to nectar secretion are soil and weather conditions. These two conditions are almost a mystery to the beekeepers at the present time, although data is now being gathered and the United States Federal Department of Agriculture is working on these problems. It is known that under certain weather conditions and on certain soils some plants will yield a surplus honey crop, while under other conditions in another part of the country the same plant may become useless from the apiarists' standpoint.

There are two noticeable examples of these peculiar conditions, the first being alfalfa. In the Western States alfalfa yields heavily and carloads of honey are shipped annually, while in the Eastern and Northern States alfalfa seldom yields a surplus. White Dutch clover yields a fine quality and quantity honey crop in most of the Northern States and Canada, yet in the Southern States, even though plentiful in some regions, it is not counted as a surplus honey plant.

Last season alsike clover was almost a failure as a surplus honey plant in many sections of Ontario, even in sections where it was grown for seed. This was very unusual and has not yet been fully explained. Also last season was the first year in which a number of our prominent beekeepers secured a surplus crop from sweet clover. A few authentic cases might be cited to show how valuable sweet clover might become. In one apiary a colony, on scales, gained 23 pounds in a single day. Beekeepers consider ten pounds gain per day a good one. One colony in another apiary stored 500 pounds of surplus sweet clover honey in five weeks and fully one-third of this time was unsuitable for honey gathering.

Another beekeeper secured thirty two-pound packages of bees in June and when these colonies were moved to sweet clover in July, they were quite weak and not considered as more than strong nuclei. At the close of the season they had stored 4,500 pounds of surplus honey, had enough left for winter and had drawn out an average of two and a half supers each, of combs from foundation.

In one other case, in which 100 two-pound packages were secured, by express about May 12th, one-third of the packages were dead on arrival, others in fair condition. The one-third dead were replaced the end of June with 21 one-and-a-half-pound packages. After these bees were fed and carried through till sweet clover yielded, they then gave a surplus of 6,000 pounds of honey, which paid all running expenses, interest on investment and 25 per cent. of original investment. Ninety-nine colonies were packed for winter.

These cases show conclusively that where there is a sufficient acreage of sweet clover and conditions are favorable, sweet clover is a very valuable honey plant.

Sweet clover honey is light in color and, in Ontario, mild in flavor; mixed with honey from White Dutch or alsike clover it is an excellent table honey. Pure sweet clover honey, in Ontario, must be thoroughly ripe before extracted or it will not keep for a long period. Yielding so heavily it is somewhat thin in body until thoroughly ripened by the bees.

In the United States there are three varieties of white sweet clover now recognized, viz., the ordinary biennial white sweet clover which blossoms and ripens over a period of several weeks, a second biennial which ripens much more uniformly and over a much shorter period, and a third variety an annual white sweet clover which is sown in the spring and yields a seed crop in the fall. This latter was grown in Michigan last season and blossomed and set seed freely.

Although sweet clover is a valuable plant from the beekeepers' viewpoint, the bees are undoubtedly a great deal more valuable from the growers' viewpoint, for without the honey bee the seed crop would be materially reduced. Honey bees play a double part, they store the nectar for the beekeeper and in so doing, produce a crop of seed for the grower.

MARKETS FOR SWEET CLOVER SEED.

G. S. Peart, Markets' and Intelligence Division, Seed Branch, Ottawa.

Unless there develops a phenomenal demand on the part of Canadian farmers during the next three months for sweet clover seed, there will likely be a heavy carry-over of unmarketed seed in Ontario. This is apparent for two reasons:

(*a*) Export market prospects are bad.

(*b*) Normal Canadian requirements for sweet clover seed are insignificant as compared with the estimated amount of seed available within the Province.

The crop of sweet clover seed in Ontario is estimated by Seed Branch correspondents at one hundred per cent. increase over 1919. This increase in production is the logical result of the heavy demand for the seed one year ago and the large money returns netted the growers. In 1919, the production of sweet clover seed in Ontario was estimated at 30,000 bushels sold to merchants, plus an unknown quantity that changed hands from the growers to the farmers direct. Now, assuming its production in 1920 was 100 per cent. greater than in 1919, there would be 60,000 bushels of the crop available within the Province for the trade this season. This would be additional to the unknown quantity that may be expected to change hands from growers to farmers direct.

Our estimates of production in 1919 are based on Departmental statistics, which show that at least 24,000 bushels were exported to the United States during January, February and March, 1920.

It is estimated further that the seed trade in the aggregate exported four bushels of sweet clover seed last season for every one sold within the Province for seeding purposes. Thus evidently about 6,000 bushels were returned to the farmers for seeding. According to the foregoing calculations there should be approximately 60,000 bushels in the Province that the trade is expected to absorb this season as against 30,000 bushels last season of which 24,000 bushels were exported. Unfortunately the demand for the seed in the United States has been almost nothing this season so far, and there would appear to be little prospect of much improvement in the market there. The Bureau of Markets, Washington, has reported that the home supply in the United States is equal to prospective demand, with further prospect of a carry-over to next year. The American farmer particularly in the State of Kansas increased the production of sweet clover seed as did the Ontario farmer, and for much the same reason. American seed houses claim that an important quantity of the seed imported from Canada last season was carried over unsold to this season which resulted in considerable loss, because they were required to absorb the loss as between the $20 per bushel, the price they paid for the seed in Canada, and the prevailing price of to-day.

Prospects of exportation of this seed to other countries are not bright for this season at any rate for, so far as we know, sweet clover production has not been incorporated in their agriculture. Some other countries are experimenting with it but have got no further. This matter has been investigated through Canadian trade commissioners and other sources in New Zealand, Australia, Argentine, South Africa and Europe.

There promises to be twice as much sweet clover seed in the Province this season as last season, with the chief export market to the United States cut off. Assuming there is 60,000 bushels available that the trade is expected to absorb, what can be done to facilitate its being satisfactorily marketed in Canada? If we calculate the acreage this seed will sow on the basis of four acres per bushel, it would require 240,000 acres. We would need to locate 24,000 farmers to use the seed if each sowed ten acres. It would be a matter of extending the home market tenfold in one season, for only 6,000 bushels were marketed by the trade in Canada last season according to estimates previously given.

That there will be greater demand in the home market this coming season than ever before seems quite probable, particularly if farmers can buy the seed around $5 per bushel. A growing popularity of the crop is to be observed in Ontario and extending to other parts of Canada. Thousands of farmers during the past two years have come to believe in sweet clover as a general utility forage crop and one of the best nitrogen gathering crops. I shall be surprised if the natural demand for seed does not materially increase this year over last year; this in face of a plentiful supply of seed of other kinds of clovers at pre-war prices.

If it is deemed advisable and in the interest of Ontario agriculture to encourage a more widespread use of the crop, and I believe that it is advisable, the Ontario Department of Agriculture might do a good deal to create a demand for the seed by following similar procedure adopted by that Department a few years ago in respect to red clover. An educational campaign was conducted throughout the Province through circulars, bulletins, institute speakers and county representatives, who proclaimed the purpose and merits of the crop. The matter is an educational one and belongs, therefore, to the Province to take the initiative in inaugurating and directing an educational campaign. The Federal Department of Agriculture might also give assistance through supporting the Provincial Department in its educational campaign and directing prospective purchasers to sources of seed supply as demand is stimulated.

The foregoing action could be supplemented in Ontario and its effect extended to other Provinces in Canada provided the Ontario Seed Growers' Association were to enlist the sweet clover seed growers on their membership roll and, with sufficient fees derived from the growers directly interested, conduct an advertising campaign in Canada in general, and in Quebec and the Maritime Provinces in particular. In the Maritime Provinces interest appears to be increasing in sweet clover and greater demand is expected for seed this coming spring than ever before.

Such action as implied in the foregoing suggestions should stimulate demand for the seed, but if anything is to be done in the matter action should be taken at once. It is now approaching the middle of January and in a month's time seed will be moving from the trade to the farm. In two months it will be in full swing and in three months it will be all over for the season.

How about prevailing prices for the seed this season? There is now neglected demand at prices ranging from $2 to $4 per bushel. It seems to me that when the market is glutted with an over-supply and the grower is required as a result to sacrifice his seed at prices probably below the cost of production, he may do well to carry it over to another year. The seed will keep if properly stored and gluts are usually temporary. As a result, the grower may receive a high rate of interest, based on present market values, by holding it. History in seed market fluctuations may repeat itself in this case.

Based on their values to Ontario agriculture, it would seem that seed of the red clover plant should not be more than twice the cost of sweet clover seed. Previous to this year it has not been so. To-day No. 1 quality red clover seed will cost from $16 to $20 per bushel and No. 1 quality sweet clover seed from $5 to $7 per bushel, the trade price to the farmer. The greater part of the crop is still in the hands of the farmers, many of whom will not sell at less than $5 per bushel for fair quality cleaned seed. Their demands for at least this price per bushel would seem to be unquestionably fair. This factor will likely mean a considerable carry-over in itself. Growers may rest assured that if a large quantity is offered the trade at the $2 mark per bushel, the seed will likely be accepted, for the trade is not adverse to buying the seed at a very safe price even though it is required to hold it as a carry-over.

GROUND SWEET CLOVER STRAW AS A FEED FOR LIVE STOCK.

W. G. Hill, Queensville, Ont.

I discovered a meal when at the Toronto Exhibition exhibiting horses. One of the men feeding horses had something in his water pail which he informed me was alfalfa meal. I thought it was rather peculiar looking alfalfa meal because to me it did not seem to be the right color. When I got him alone I asked him about it again and he told me it was sweet clover and alfalfa mixed. I asked him if he could tell me where I could get a machine to grind the straw and he said he would endeavor to find out when he got home. Eventually I received a letter from him and later got a machine.

We had two fields of sweet clover, one convenient to the barn and here we took extra care and cut it early when the material was quite green. In another field, away back, we had an awful crop. It was sown at the rate of eight pounds of seed per acre and grew up more like trees than anything else. We cut it with the binder as high as we could and even then the stubble was like a great big fan. We only shocked up a small amount of it as we found we were wasting our time. We left the crop until everything else was in the barn and the result was that when we hauled it in, it was very black. Much to my surprise it turned out better than that which we put in when green. I did not like to use it at first, but finally fed some of it to the cows. They ate it readily, seemingly not able to get enough of it.

The first thing I knew the boys said there was something wrong with the cattle. I said, "What is the matter?" and they said the cows were all scoured. I asked what they had been feeding and they said, "It is that sweet clover meal of yours." I said, "It is nothing of the kind," because I knew straw did not scour but had the opposite effect. I found they had reduced the root rations and the cattle certainly were in bad shape. We reduced that sweet clover ration and gave them dry straw. From that time on we knew there was something very strong in the sweet clover straw. I prepared several samples and put them away because there had been some talk about this sweet clover straw.

The representatives of two agricultural papers came to our place one day and asked me about this sweet clover straw. They took two of these samples away with them, and had then analyzed by Professor Harcourt, and later the results were published. I was very much surprised at the result, and said to my son, "Look here boy, here is the analysis of the sweet clover meal." He looked it over, and said, "I don't believe it." Sample No. 1 was taken from the ground straw we had taken such care of and sample No. 2 came from the rough straw that was left so long in the field. The No. 2 sample showed a much higher analysis than the No. 1 sample.

Prof. Harcourt: I remember the two samples that were sent in for analysis, and to which Mr. Hill referred. All we knew about them at the time was that one was very dark in colour and the other was bright. The bright sample contained about twelve per cent. protein and the other about fourteen per cent. That was the point I could not understand. If the two were left exposed, naturally you would expect the exposed sample to be less in protein. It is because the soluble part has been washed out and has left the proteins high. In one case there was 28 per cent. fibre and in the other 30 per cent.

SWEET CLOVER AS A SILAGE CROP.

Chas. Watson, Agincourt.

When we commenced to grow sweet clover, we were pasturing our young cattle on rough and often on uncultivated land. These cattle, during the pasture period, often received no grain and it usually required most of the winter to bring them back to the condition they should have had in the fall of the year.

We first sowed five acres of sweet clover with oats as a nurse crop. We had an exceptionally good catch and cut the crop intending to make hay out of it. The weather, however, was so wet that we decided, if we saved it at all, we would have to put it in the silo. We have a silo 12 by 30 feet, which the crop about one-half filled. We commenced feeding soon after the sweet clover was put into the silo, which would be about July 1st; by this time the cattle had been on pasture long enough to relish the change. The next year, 1917, we cut nine acres of sweet clover for silage. This year we cut it with the binder which is much the better way as the straight stems are all gathered the one way and are much easier to cut. The stock will eat sweet clover silage quite readily. It will not take the place of corn, but will provide an abundance of feed when it is most needed. It also provides one of the best summer fallows if the land is ploughed just after the first cutting of the crop.

GENERAL DISCUSSION ON SWEET CLOVER.

W. J. W. Lennox: Since 1918 I have been interested in the sweet clover crop, chiefly as pasture, and have never found anything to beat it for this purpose. For pasture, I prize it just as highly in the fall of the year as I do in the following spring or summer. It is difficult in the spring and summer to keep it fine enough to make a suitable pasture for the sheep.

In the spring of 1918 I sowed fourteen acres of sweet clover, eleven acres of which was seeded to the Yellow variety and three acres to the White Blossomed sweet clover. I sowed fourteen pounds of seed to the acre. The previous crop on the eleven acres was barley, and on the three acres, rape. We had better returns where the previous crop was rape although both crops were good. As soon as the nurse crop of oats was harvested, which was a difficult proposition because of the sweet clover growth, we turned everything we had on the hundred acres of land into this field and it was pastured as low as sheep will pasture. In the spring of the year, the sweet clover seemed to be doing well. We had to cut it to keep it within bounds. The growth was such that at the end of three weeks I found that the animals were unable to keep it down so I decided to divide the field into three parts, seven acres for seed, four acres for hay, and three acres for pasture. Part of the hay crop was light because it was on a very poor part of the field, but it averaged about one ton to the acre. The sheep made fairly good use of the hay. From the middle of December, last year, we fed it to our horses with very good results. This may have been because the horses did not have to work from December until the spring. From the part of the field left for seed we had very good results. The crop was cut by the binder which was drawn by three horses.

On the three acres of pasture, we pastured eight head of cattle and three horses. The horses were pastured during the nights and on Sunday. At times we turned the sheep on the pasture to see what the result would be. We never had a crop on our farm that gave as good results as this sweet clover pasture.

There is no question in my mind as to the pasture value of sweet clover to the practical farmer, although there is some question as to the value of sweet clover as a hay crop.

R. F. Holtermann: Sweet clover is a plant which blooms at a time of the year, from the 20th to the 24th of June, when no other flowers are in bloom and it, therefore, has a distinct value as a honey plant. Sweet clover honey is a white honey and there is danger, because of this, that it will substitute for white and alsike clover honey. If this takes place, it will injure the reputation of Ontario's honey, as sweet clover honey, although the same in colour, is not of as good a quality as white and alsike clover honey.

The question has been asked, what is to be done with sweet clover seed? I must confess that I am rather pleased that the market for sweet clover seed is getting ahead of the demand for it. I have watched the sweet clover problem for a number of years, and I am under the impression that the grower of sweet clover has been largely actuated by the price he could get out of the seed when he sold it.

Mr. Couse: In a district where sweet clover is grown, the farmer who sows a crop of red clover or alfalfa is in danger of having sweet clover come up in these crops. I know of an instance where a crop of sweet clover was sown and the land was later seeded to alfalfa. The resultant crop was more than one-half sweet clover.

J. W. Sangster: For the last fifteen years I have been interested in the sweet clover problem, and during this time I have also watched the red and alsike clovers. The success we anticipated in growing red clover has passed away but we have found something else to take its place in sweet clover. My experience convinces me that there is tremendous fertilizing value in sweet clover, many times more than in red clover. Who would change the fertilizing and rejuvenating power of sweet clover for that of the red or alsike, even with these old plants at their best.

A sweet clover crop one year and a grain crop the next year is the best system as a perennial plan. It is your duty to recognize the fact fairly and fully, and let old methods, which may have their old friends, take second place to the things that are now recognized and have been proven. Where is the agriculturalist in the Dominion of Canada who will stand up and say what he might have said ten years ago. Now they say sweet clover is a good thing and everybody rejoices that we have such a crop.

A MEMBER: How long have you been growing sweet clover for silage?

MR. WATSON: Since 1917. Our idea was to get something to carry us through the dry months of the summer. We had no difficulty in keeping up our supply of milk with this silage. We do not feed sweet clover silage right out of the silo into the manger. I would never advise that. It is so solid in the silo that it becomes cakey and, if given to the cattle in this condition, would do harm. We put a certain amount of meal with the sweet clover silage and stir it up.

A MEMBER: Does it make better silage than corn?

MR. WATSON: No, I do not think sweet clover silage will ever take the place of corn.

A MEMBER: Does much spoil on top of the silo?

MR. WATSON: We had none spoiled.

THE EUROPEAN CORN BORER.

PROF. L. CAESAR, O. A. COLLEGE, GUELPH.

As the result of newspaper and magazine articles and references, and the widespread interest aroused thereby, there is probably no one present who does not know that last summer a new and dangerous corn pest, known as the European Corn Borer, was found in Ontario. As the name indicates, the insect has been introduced from Europe. It is a native of both Europe and Asia where it has been recognized as an important corn pest for many years.

Had this insect been a native of North America there would not have been much cause for anxiety because all our native insects are kept under fairly good control by native forces, such as disease, parasites and predaceous insects. Imported insects, however, are usually brought in without their enemies and if the climate is favorable for them, as it apparently is for this insect, they have a remarkable opportunity to increase before our native parasites and predaceous insects learn to attack them. Good examples of imported insect pests and how dangerous they may become are the San José Scale, which must have killed over 2,000,000 fruit trees in Ontario since its introduction about thirty years ago. Were it not for spraying it would have ruined all the orchards in the Niagara district as well as many others elsewhere. The Gipsy Moth, though introduced only about fifty years ago, has cost the State of Massachusetts and the United States Government more than $10,000,000 to combat and the struggle is not yet over. The fact is that more than 50 per cent. of our very troublesome insect pests have been introduced from abroad through commerce.

PRESENT DISTRIBUTION IN CANADA AND UNITED STATES.

In the United States this insect was first found in 1916 in Massachusetts and is now fairly widely spread over that State. About two years ago it was found in New York State and now is distributed over two large but widely separated areas there. So far as is known it does not occur elsewhere in the United States. In Canada, it has been found only in Ontario. In Ontario, it has been discovered in seven counties; namely, Welland, Haldimand, Oxford, Elgin, Middlesex, Kent, and Huron. In the last county I believe only one borer was found.

The total infested area includes over 3,000 square miles but much of this is only slightly infested. By far the heaviest infestation is in the County of Elgin, between St. Thomas and Port Stanley. In several fields here 90 per cent. or more of the plants were attacked and hundreds of thousands of larvæ were in some cases present in a single field.

PROBABLE MANNER AND TIME OF INTRODUCTION.

Although the European Corn Borer was discovered in this Province only last summer, yet its abundance and wide-spread distribution clearly indicate that it must have been present for several years. It is thought by the Dominion Entomologists, who devoted much time to the study of this problem, that the insect was introduced about the year 1910 on a shipment of broom corn from Austria to St. Thomas and that it has been gradually increasing since. The Haldimand and Welland infestation may have been brought about by table corn on the cob brought in from the infested areas in New York State, or possibly by the moths flying across from these areas.

FOOD PLANTS.

In Europe, the borer attacks corn, hemp, hops and millet, and to a lesser extent weeds with a large or fleshy stem. In Ontario, corn is pre-eminently the favorite food plant although the borers will also feed upon fleshy weeds liks lambs quarters, pigweed, smartweed, ragweed and barnyard grass. They do not, however, so far as one can judge, attack these plants unless they are in among the corn. All kinds of corn are attacked, but sweet and flint varieties are evidently preferred to dent. Dent corn, even when badly attacked, seems to be less injured than the others.

DESCRIPTION OF THE BORER.

The borer is a moderately stout caterpillar about one inch long when full grown. The body varies in color from a pale brown to almost white with sometimes a pinkish tint. The head is brown and here and there over the body are little brownish spots that can easily be seen with a hand lens. Like all ordinary caterpillars the borer has legs and can move about fairly rapidly.

NATURE OF THE INJURY.

When the caterpillars are very small they prefer to feed on the leaves and the young tassels, eating areas out of these. As they grow larger they commonly bore into the stalk a couple of inches below the tassel and tunnel up and down it devouring most of the interior and weakening the stem, so that in many cases the tassel breaks over. This falling over of the tassel is one of the easiest ways to recognize the presence of the insect. Later the borers work into any part of the stalk making small round entrance holes. Once inside they tunnel up or down in the pith and feed upon it. At the entrance holes the powdery borings thrown out by the insects can usually be seen and help to make it easy to recognize their presence. Such borings often collect in little heaps at the junction of the leaf and stem. Ears are also entered and the borers not only devour a considerable area of the kernels but also often bore right into the centre of the cob itself. It is clear, therefore, that any part of the plant, from the tassel right down to the base where the lower main roots branch off, may be attacked. As a result of the holes made in ears and stalks water often gets into the affected parts and rots develop which sometimes do as much damage as the feeding of the insect and help further to weaken the plant. From these two causes—feeding and rots—badly affected plants, especially late in the season, often break down with the wind. The larger the number of borers the sooner the plant will break over.

Up to the present we cannot say that a great deal of damage has been done, even in the worst fields, for in spite of the presence of even a dozen borers per plant, corn plants are so vigorous that most of them continue to grow and to fill the ear. The main cause for alarm, therefore, is not in what has been done but what is likely to be done in the future, and on this we should, if possible, take no chances, for we have no proof that the insect will not continue to increase from year to year, and at the same time become more and more widely distributed over the Province. There are fields now in Elgin with so many larvæ in the stubble that if these all were to live through the winter and develop into adults there would be about 200 borers to each hill next year. However, I expect the winter will kill great numbers and that there will not be nearly that number per hill. It may be of interest to know that in Europe the borer is said at times to destroy as high as 40 per cent. of the corn crop.

LIFE HISTORY.

The life history has not yet been worked out for Ontario, but judging from what has been learned in Massachusetts and New York, it doubtless is about as follows: The moths, which are about an inch in wing expanse and brownish in color, begin to emerge in June and continue to do so through most of July. These fly around in the evening and in three or four days begin laying little clusters of white eggs, chiefly on the underside of the leaves of corn. A single female lays many such clusters and sometimes a total of 700 or more eggs. These eggs hatch in about a week and the small caterpillars feed at first on the leaves and developing tassels and later bore into any part of the stem or ear, as described above.

Not a great deal of damage is done until the latter part of the summer and September, by which time the caterpillars have become nearly full grown and so are able to consume much food. The winter is passed in burrows in the stalks, cobs or the stubble left in the field. In spring the larvæ resume feeding for a little while on whatever part of the plant they are in and then change into pupæ and in June, as said before, begin to transform into adults; so that apparently there is only one brood a year.

NATURAL ENEMIES.

Although numerous borers were examined this year there was very little sign that they were being attacked by predaceous insects, parasites or disease.

In fact, it looked as if they were remarkably free from enemies. However, in Massachusetts, a few parasites have been found attacking them and it is claimed that many succumb to the effect of winter and to unfavorable late fall and early spring weather.

Methods of Control.

So far satisfactory methods of control have not been worked out but reasoning from what we know of the insect it is clear that the following will help.

1. Building of silos in all infested areas should be encouraged and all corn cut and put into these. This will destroy about three-fourths of all the larvæ. The corn should be cut as low as possible so as to leave as few larvæ as possible in the stubble.

2. The corn fields should be kept very clean, especially in June and July to prevent the growth of weeds; for larvæ often enter these weeds and so would be left in the field.

3. Where there is no very special reason for growing flint corn, dent corn should be substituted as being less injured.

4. In districts where corn is not grown for fodder but for seed, all cobs should be preserved, dried and used for fuel or burned in some other manner before the end of May. The stalks should also, so far as possible, be disposed of either by first shredding them and then feeding them to cattle or by allowing them to dry and then burning them before the end of May, otherwise great numbers of borers will come safely through the winter in them and transform into moths in June and lay eggs.

5. In very badly infested areas it may become necessary to devise some rapid method of removing the stubble and destroying it.

6. For the present a quarantine to prevent the shipment of corn on the cob from infested areas to uninfested areas will help to delay the insect's progress. Such quarantine is now in force.

Investigation Work.

It stands to reason that when a new insect is introduced, especially one attacking such an important crop as corn, the most thorough possible study of its life history and habits should be made by entomologists. The Dominion Entomologist and myself have from the first recognized the importance of this insect and have been devoting very close attention to it. Five men, sometimes more, were employed for more than a month last fall scouting to determine the present distribution. Other men were set to work to study the injury done, the habits of the insect, especially its wintering habits and to prepare material for next year's work. I propose asking the Legislature for a special grant to cover the expenses of a thorough study of the insect next year, with the object of finding some weak spot in its life history by taking advantage of which, we may discover a good practicable method of control. I am optimistic enough to feel that no matter how bad the insect may be we will discover a way to control it and keep the corn industry unimpaired.

A Member: Are the larvæ invariably found on the leaf or stalk of the corn?

Prof. Caesar: The egg is usually deposited on the under side of the upper leaves but sometimes are laid on the stalk of the corn. They are never laid on the ground.

A MEMBER: Is it true there is an embargo on the shipment of corn?

PROF. CAESAR: There is an embargo on the shipping of corn from any infested district. Essex, Lambton and part of Kent are outside of the embargo area. It applies to four townships in Kent County.

RESULTS OF SOME EXPERIMENTS IN LAMB AND STEER FATTENING.

PROF. WADE TOOLE, O.A. COLLEGE, GUELPH.

The farmer has two great problems always before him, viz., 1. The problem of production; 2. The problem of marketing. Perhaps the last named is to-day his biggest problem for, in the past, agricultural science and education have made greater efforts to solve the riddle of production than they have to answer the question of markets. To-day, however, without forgetting that there are still thousands of unanswered questions in production, more effort is extended toward a solution of the great marketing problems of the producer. Unless the farmer can make a reasonable profit on his work of producton he is not a very enthusiastic producer. There is no use of crying Produce! Produce! simply that overcrowded urban centres may be fed. The man on the land requires some help to produce, and is now looking for some assurance that he is going to be able to market his products to advantage. The producer is studying both production and marketing.

Co-operative experiments in live stock work are not easy to carry out. The work of the Animal Husbandry Department of the O.A.C. does not lend itself readily to experiments to be carried out on individual farms as is the case with field crops. However, we are able from time to time to outline and carry forward some work which is valuable to the man on the land. Keeping in mind the facts as presented regarding production and marketing we have outlined two experiments, one in fattening lambs and one in fattening steers. While results are not yet definite enough to enable us to draw final conclusions on all phases of the work they are at least interesting and valuable as far as they go and we felt that members of the Experimental Union would be particularly interested in the findings.

A LAMB FATTENING EXPERIMENT.

The objects of the lamb experiment were:

1. To prove or disprove the accuracy of the statement that it pays to finish lambs.
2. To get records of gains with lambs on certain feed.
3. To prove or disprove the accuracy of the statement that all male lambs for feeding purposes should be castrated.
4. To ascertain the spread in price on each group to make it pay to finish lambs.

This experiment has been worked as a thesis by two of our senior men in each of two seasons and will be continued. These men were required to make a rather extensive study of lamb marketing conditions and were asked to market these lambs and follow them into the coolers.

The two students working on the problem in the fall of 1918 were Messrs. Higgins and Aylsworth. These men made a rather extensive study of Canadian and United States markets. They found that the market demands a lamb which produces a dressed carcass of around 40 lbs., or one which weighs alive from 80 to 90 lbs., and is well finished with a broad, thickly and evenly fleshed back, a wide, thick loin and a large leg of mutton.

A careful survey of prices at the Union Stock Yards, Toronto, was made by months from January, 1916, to December, 1918, and the following conclusions drawn:

1. That the majority of lambs are marketed in the fall, 66 per cent. being marketed during the months of September, October and November, 1916, 71 per cent. in 1917, and 61 per cent. in 1918.

2. The common practice of selling off most of our Canadian lambs during the fall has resulted in a glutted market. The buyers take advantage of this opportunity to buy up large supplies, holding them over in cold storage. The result always means a slump in price, which is borne out in prices submitted for the years 1916 to 1918, inclusive, which reached the lowest mark in the month of September.

3. The best quality of lambs are marketed during October and November. These are months when receipts are the largest. Some breeders make a commendable practice of culling out their flocks before marketing, selecting the lambs of good finish and uniform weight, and holding back the lighter lambs to properly fatten and finish, marketing them in late winter or early spring.

There are some good grain fed lambs put on the market in the spring but the bulk of the early spring receipts have been merely roughed over the winter.

4. The majority of lambs are marketed at Toronto. The figures submitted show a total of 144,761 lambs for the year 1918, which averaged 94 per cent. good quality.

The poorest grade of lambs are marketed at Pt. St. Charles, Montreal, which average 44 per cent. good quality.

The total number of lambs marketed at Montreal, Toronto and Winnipeg during the year 1918 was 221,377.

The lambs used in the experiment the first year were mostly pure-breds mixed in each lot and including Oxfords, Shropshires, Leicesters, Southdowns and Cotswolds. There were eight ram lambs, eight ewe lambs and eight wether lambs.

These lambs were pastured on rape from September 16th to October 16th. The average gain of the Oxfords on rape for the month was 18 7-9 pounds or 20 per cent. The Southdowns gained 14¾ lbs., or 20 per cent. The Shropshires gained 17 14-19 lbs., or 22⅔ per cent.; the Leicesters 19 4-11 lbs., or 26 per cent.

The fact brought out was that rape is a great fall feed for the lambs and those lambs dropped between March 25th and April 15th made the best gains. It is more than likely that where lambs are dropped at dates mentioned and where rape is provided for fall pasturage that they will be fat enough for market when coming off the rape. The only drawback is that they are ready in the season when the market is most likely to be glutted.

These lambs came off the rape October 17th and each lot went into a separate feeding pen. They were fed mixed hay and a grain ration consisting of three parts crushed oats to one part bran fed at the rate of 1½ lbs. per lamb per day, and turnips at the rate of 3 lbs. per lamb per day. The following table shows relative gains, and loss during shipment.

Relative Gains in Wether, Ram and Ewe Lambs from

October 20th to December 12th, 1918,

Date of weighing.	Ewes.	Wethers.	Rams.
Oct. 19th	630 lbs.	718 lbs.	634 lbs.
" 27th	690 "	788 "	688 "
Nov. 3rd	688 "	802 "	708 "
" 16th	692 "	806 "	732 "
" 23rd	704 "	814 "	736 "
Dec. 4th	712 "	824 "	744 "
" 12th	716 "	830 "	760 "
Live weight at Toronto	690 "	800 "	730 "

	Ewes.	Wethers.	Rams.
Gain	13½%	15½%	19%
Loss during shipment	3.22%	3.61%	3.95%

The dressed figures of the three different lots were as follows:

	Live weight	Dressed weight.	Yield.	Price per pound.
Eight ewes	680 lbs.	338 lbs.	49%	15½c.
Eight wethers	800 "	400 "	50%	15¼c.
Eight rams	730 "	343 "	47%	14¼c.

From marketing results the following conclusions are drawn:

1. The ram lambs lost a greater percentage in weight during shipment than either the wether or the ewe lambs.

2. The highest price was obtained for the ewes. The lowest price was obtained for the rams. The ewes brought more per pound than the wethers for the reason that they were about the proper weight, while the wethers were considerably too heavy.

3. The rams dressed out the poorest, as well as being the poorest sellers. They were coarse in neck and shoulder, and were lacking in finish in the more highly priced cuts.

4. Markets will pay a dividend for well finished lambs. On December 13th—the day the lambs were marketed—the market was dull, quotations for lambs being $14.40. Yet the rams, which were the poorest sellers of the lot, brought $14.25, while the wethers brought $15.25 and the ewes $15.50.

There is a fine point right here, showing that the finished product is always in demand, commanding the highest market price.

5. Markets discriminate between ram lambs and wethers, accepting rams only at a reduced price. The wonder is that a greater discrimination is not shown and undoubtedly would be if it were not for the keen competition among the buyers.

In this particular case neglect in castration meant a loss of 91 cents per head. It may prove interesting to know what neglect in castration would mean to Canada for the year 1918. Referring back to statistics already quoted, it will be seen that there are approximately 221,377 lambs marketed, collectively, at Toronto. Winnipeg and Montreal. Roughly speaking, there would be one-half ram lambs or 110,688. Assuming at the time of marketing that the wethers weighed 90 pounds at 15¼ cents and the rams weighed 80 pounds at 14¼ cents—which is relative difference in weight and price in the experiment, the following would have been the result:

110,688 ram lambs at 80 lbs., at 14¼c., equals	$1,261,843.40
110,688 wether lambs at 90 lbs., at 15¼c., equals	1,545,492.60
Loss in 1918, due to neglect in castration	$283,649.20

The eight ewe lambs weighing 630 lbs. when the feeding period commenced were put in at 15 cents per lb., or $94.50. Their feed, freight, yardage, etc., brought the cost up to $115.17. When sold they weighed 690 lbs. at 15½ cents per lb., and brought $106.95, showing a loss of $8.22.

The wethers weighed 718 lbs. at the beginning which at 15 cents per pound meant $107.70. The total expense with them was $132.32. These eight lambs weighing 800 lbs. sold at 15¼ cents or $122.00, showing a total loss of $10.32.

The rams weighed at the beginning of the feeding period 634 lbs. at 14 cents, or $88.76. Their total cost was $113.45. They weighed, when sold, 730 lbs. at 14¼ cents bringing $114.03 and showing a loss of $9.42. (It must be remembered that these rams weighed only 634 lbs. when going on dry feed as compared with 718 lbs. as the weight of the wethers. Where they lost out was in gains on rape.)

These results showed that in order to make 10 per cent. profit on money invested, to say nothing of overhead and labor, a spread of $2.58 per cwt. was necessary between the buying and selling price of such lambs, half fat off rape pasture when going into the feeding pens.

A similar experiment was carried out again the following winter by Messrs. King and Hopper of the senior year. These men found that over two-thirds of the total lamb receipts at the Toronto Stock Yards in 1919 came in months of low prices September, October and November. These three months were shown to be the months of heaviest sales on all the leading markets.

On November 6th, 1919, 24 lambs were brought to the College from Toronto market. They consisted of 8 rams, 8 ewes and 8 wethers. These lambs went on grain feeding November 19th and were marketed on Toronto market January 9th, 1920. The lambs were a more or less scrubby lot, thin and not of the best feeder type.

On November 19th they were started on a grain mixture of 1 part bran. 1 part ground barley and 2 parts ground oats. They got ½ lb. of this mixture per lamb per day until November 23rd when the ration was increased to 1 lb. per day, and on November 30th the ration was again increased to 1½ lbs. per lamb per day. The lambs could not handle this amount of grain and on December 4th the ration was decreased to 1¼ lbs. per day. On December 14th 1 part of ground corn took the place of 1 part of ground oats. The lambs did not seem to make good gains on this mixture along with mixed hay and silage or roots. On December 20th the ration was changed to 1 part whole oats and 1 part of ground corn.

Each pen of 8 lambs was given all the hay they would clean up and each lot got 6 lbs. of corn silage per day till December 20th. On this date the silage was discontinued and 8 lbs. of turnips fed to each pen. The lambs were poor feeders, light and small and we had difficulty getting them to take feed. The following table shows the daily average of feeds consumed by them.

Daily Average of Feeds Consumed per Lamb.

Feeds.	Rams. (lbs.)	Wethers. (lbs.)	Ewes. (lbs.)
Hay	.98	.82	.79
Silage	.69	.69	.69
Turnips (sub. for silage, Dec. 20th)	.98	.98	.98
Grain	1.22	1.12	1.03

The lambs did not make good gains but the spread in price was abnormally high so they made a profit. The eight ram lambs weighed in at 480 lbs. at 11 cents per lb., or $52.80. They sold out at 590 lbs. at 16½ cents per pound, or $97.35, showing a profit over feed, freight both ways and yardage charges, together with interest on investment, of $17.95, or $2.24 per lamb.

The wether lambs weighed in at 450 lbs. at 11 cents, or $49.50. They weighed 530 lbs. when sold at 18 cents per pound and brought $95.40. They made a profit over feed and other items previously mentioned of $21.29, or $2.66 each.

The ewe lambs weighed in at 430 lbs. at 11 cents, or $47.30. They weighed out at 490 lbs. at 18 cents per lb., or $88.20. They showed a profit of $17.74, or $2.22 each. (They were poor doers, the eight only gaining 60 lbs. in the whole feeding period.)

These lambs made a total profit of $56.98 over the original cost price of $149.60 almost entirely due to the great spread in price per lb. between the 11 cents purchase price and the 16½ cents and 18 cents selling price. The spread of the ram lambs was 5½ cents per lb., and that on the others 7 cents per lb. It will be noted that the wether lambs showed the greatest profit.

The cost of feed to produce 1 lb. of gain was 19.6 cents with the rams, 24.5 cents with the wethers and 30.4 cents with the ewes but the last two were worth $1.50 per cwt. more on the market than the former so were most profitable.

The first year the experiment on the 24 lambs showed a loss of $27.98. The second year a similar experiment with 24 lambs showed a gain of $56.98, or a gain for the two years with 48 lambs of $29.00 or a little over 60 cents per lamb. And this with one year of abnormal spread.

We are not yet convinced that it pays to stable fatten lambs. We do know that a field of rape in the fall is a cheaper means of making gains than stable feeding. We also know that ram lambs are always worth from $1 to $1.50 less per cwt. on the market than wether lambs and that they lose more in transit, kill out a smaller percentage of dressed carcass and hang up coarse and scraggy as compared with wethers.

The case against the ram lamb as a feeder is complete. He should be castrated at two to three weeks of age. This experiment will be carried forward for several years to come. One thing seems certain. There is too great a rush of lambs to market during September, October and November. Perhaps the breeder can do something to overcome this by getting some of his lambs ready earlier. Rape and second cutting red clover will help.

A Steer Feeding Experiment.

A steer feeding experiment has been outlined and carried through which should be interesting to all cattle raisers. Of course, this work must be duplicated for several years before anything really definite can be said but the results so far are valuable. We started out to prove or disprove the value of breeding in beef production—to prove the value of beef type and the pure-bred sire in beef production. Five groups of calves were selected: A group consisting of a pure-bred Hereford, a pure-bred Angus and a pure-bred Shorthorn; B group, 3 Hereford-Shorthorn cross-breds; C. group, 3 shorthorn grades by a pure-bred Shorthorn bull; D group, 3 scrubs; E group, 3 pure-bred Holsteins. These steers were all put in as calves or junior yearlings and carried forward through two winters and one summer. They were purchased in the summer of 1918 and marketed in the spring of 1920. The pure-breds weighed 1,161 lbs. and cost 12c. per lb., or $139.32. The cross-breds weighed 1,200 lbs. and cost 10c. per lb., or $120.00. The grades weighed 1,134 lbs. and cost 10c. per lb., or $113.40. The scrubs weighed 1,292 lbs. and cost 8c. per lb., or $103.36. The Holsteins weighed 762 lbs. and cost 7c. per lb., or $53.34.

The extra price paid for the pure-breds was because no breeder would sell us his male calves for castrating at ordinary beef prices. This made these calves cost more than their individuality would warrant. It must be remembered, too, that the scrubs were approximately 10 months older than any of the other calves. The raiser of stocker calves should get a good hint in relative prices paid for these calves. The good grades were worth 10 cents per lb., while the scrub and dairy steers were bought for 8 cents and 7 cents per lb. respectively, which later proved more than they were worth.

The calves were all started for a short time on roughage and began the first winter feeding period on October 1st, 1918, with groups A and B getting 4 lbs. concentrates per group per day and the other groups 3 lbs. per group per day. The concentrate ration consisted of 1 part bran and 2 parts of mixed oats, barley and a little wheat. The roughage ration consisted of 1 part second grade hay, 2 parts corn silage and 8 parts turnips. For the first month groups A and B took 30 lbs. per group per day of this roughage and all other groups 24 lbs. per group per day. These feeds were gradually increased until during the last month of the feeding period from April 12th to May 16th, 1919, three of the groups were getting 100 lbs. of roughages daily each and the other two 90 lbs. of roughages each and each group was getting 15 lbs. concentrates per day.

From October 1st to May 12th the pure-bred steers made an average gain of 346.3 lbs. or 1.52 lbs. per steer per day. The cross-bred steers gained 358.3 lbs. or 1.58 lbs. per steer per day. The grade Shorthorn steers made an average daily gain of 1.7 lbs. per steer per day. The scrub steers 1.47 lbs. per steer per day and the dairy-bred steers 1.36 lbs. per steer per day.

The gains were made on a cost of 11 cents per lb. for A group, 10.6 cents per lb. for B group, 11.3 cents per lb. for C group, 11.2 cents per lb. for D group and 10.1 cents per lb. for E group. Hay was figured at $15.00 per ton, silage at $4.00 per ton, roots at 12 cents per bushel, and concentrates at $2.50 per cwt.

The calves went out to grass in good condition on May 16th and were on good pasture until November 4th, 1919. It is interesting to note that in going out on good pasture these stable fed youngsters lost, in the first week, for the 15 steers an average of 92 lbs. each per steer. They were still losing on the second week at grass and during the first two weeks out they lost from 11.6 per cent. to 14.3 per cent. of their original weight. After three weeks on grass all groups were making slight gains but it was not until July 18th, nine weeks after going to grass, that all groups (with the exception of one which was still behind 10 lbs.) were back to their stable weight. This would lead one to the opinion that if young cattle are fairly fat it may pay to market rather than turn to grass.

The average daily gain per steer from May 16th to November 4th was:

Pure-breds.	Cross-breds.	Grade Shorthorns.	Scrubs.	Dairy Steers.
.26 lbs.	.35 lbs.	.39 lbs.	.87 lbs.	.70 lbs.

The reason the scrubs and dairy steers made higher gains on grass was because they were thinner when turned out and the scrubs were older and made better use of grass. The cheapest gains on grass were made at 9.6 cents per lb., and the dearest at 25.4 cents per lb.

The finishing period commenced on November 4th, 1919. For the first ten days the steers got roughages alone starting with 100 lbs. daily per group. This roughage consisted of 5 parts good corn silage, 1 part cut timothy and mixed hay. On November 14th group D was advanced to 120 lbs. roughage daily and each group was given 15 lbs. daily of concentrates, composed of 4 parts ground oats, 1 part ground barley and 2 parts ground corn.

The roughage ration remained the same for the entire feeding period but the concentrate ration was gradually increased until each group was getting 25.4 lbs. per day for the last month.

From November 4th, 1919, to March 10th, 1920, the steers made the following daily gains:

Pure-breds.	Cross-breds.	Grade Shorthorns.	Scrubs.	Dairy Steers.
1.85 lbs.	1.71 lbs.	1.82 lbs.	1.64 lbs.	1.46 lbs.

And the gains cost per lb.:

13.89 cents.	14.96 cents.	13.99 cents.	16.61 cents.	17.65 cents.

During the progress of the experiment an interesting test in dehorning was made. All the steers with the exception of the Aberdeen Angus were dehorned on December 19th, 1918. During the week following dehorning this Angus steer gained 25 lbs., the Hereford steer lost 4 lbs., and the Shorthorn neither gained nor lost. The cross-breds lost an average of 50 lbs. each due to one steer becoming unmanageable which himself lost 80 lbs. The grade steers lost 28.3 lbs. each, the scrubs 15 lbs. each and the dairy steers 14 lbs. each. Two groups made small gains during the second week after dehorning and two groups lost 3.3 lbs. per steer. The cross-breds still lost 36.6 lbs. as a group. All were gaining normally in the third week with the exception of one group. The Angus steer gained 45 lbs., while the others were getting back to normal gains. Those dehorned lost 32 lbs. each on the average before starting to gain. This proves that it pays to stop the horns on calves before they are three weeks old by using a little caustic potash. However, it paid to dehorn these steers for they brought ½ cent per lb. more on the market than if they had had horns. Often the difference is as much as $1.00 per cwt. in favor of the dehorned steer.

From work done in the experiment it was shown that the value of the manure just a little more than balanced off the labor.

The steers were sold in separate groups on Toronto market and the steers were followed right into the cooling rooms. Some interesting figures on shrinkage in transit were obtained. The average shrinkage on the 15 steers of all types and which averaged 1,003 lbs. at the College barn was 73.8 lbs. per steer, or 7.26 per cent. of the original weight.

The steers were all sold on their merits and the pure-breds, cross-breds and grade Shorthorns all graded choice and brought 14 cents per pound. The scrubs graded common to medium and brought 9 cents per lb.

The price fixed for the carcasses was 22 cents per lb. for the three best grades, 18 to 19 cents per lb. for the scrubs and 17 cents per lb. for the dairy steers.

It cost in freight, yardage and commission $45.45 to market the 15 steers.

The total cost, selling price and loss or gain are shown in the following table.

	Total Cost.	Selling Price.		
Group A—Pure-breds	$395 12	$394 80	Loss......	32
Group B—Cross-breds	375 80	397 60	Gain......	$21 80
Group C—Grade Shorthorns	352 10	366 80	Gain......	14 70
Group D—Scrubs	363 73	341 00	Loss......	22 73
Group E—Dairy Steers	292 04	222 93	Loss......	69 11

The pure-bred steers did not make a big gain chiefly because of the increased cost in the beginning due to the fact that it is difficult to buy pure-breds. Had they been procurable at the same price per pound in the beginning as was paid for the cross-breds and the grades their showing in money returns would have compared very favorably with the best.

The points to remember are that the scrub steers brought 3 cents per pound less than the grades sired by a pure-bred bull and the dairy-bred steers brought 5 cents per pound less than the good beef-type steers. This means $30 per 1,000 lb. steer less for scrubs than for good grades sired by a pure-bred bull and $50 per 1,000-lb. steer less for dairy-bred steers than for good beef-type steers of the same weight. The scrub and dairy steers lost money. The grade and cross-bred steers made a profit. The steers by a pure-bred beef sire made a profit over feed alone 24.5 per cent. higher than steers of scrub breeding. Steers of dairy breeding lost 2.9 per cent. over cost of feed alone.

While further experiments are to be made it would appear that breeding is of decided value in the economics of beef production, that the pure-bred sire is essential to success and that dairy and scrub steers are a losing proposition.

THE LIVE STOCK INDUSTRY.

Geo. E. Day, Guelph.

If we reflect upon what it would mean to us to have removed from our table, milk, butter, meat, cream and cheese, besides all articles of diet into the preparation of which animal products enter to a greater or lesser degree; if we consider how much it would affect our comfort and convenience to discard from our apparel all articles made from wool or leather; and if we give a few minutes thought to the disastrous effects upon industry, trade, commerce and civilization which would follow the elimination of the live stock industry, we will have a glimpse of how essential this industry is to the civilized world.

Not only is the industry essential to the general public, but it is also essential to the best interests of the man who tills the soil. The pioneer farmer starting upon his homestead with very limited capital, has to depend for a time entirely upon the production of grain. He soon finds, however, that grain farming is considerable of a gamble, and as soon as his finances permit he adds to his activities the breeding and feeding of live stock. The presence of stock upon the farm provides a more regular income, and prevents waste by enabling the farmer to turn into marketable product many substances which in themselves have little or no market value. Live stock also provides profitable winter employment for labor, and in this way assists the farmer to procure satisfactory help for the reason that it is easier to hire good men by the year than it is to secure them for only a few months during the summer. In addition to this, we must not overlook the fact that in many parts of the country the maintenance of live stock is essential to the maintenance of fertility in the soil.

There is another feature of the live stock industry which should not be overlooked. Every stick of timber taken from our forests, and every pound of ore removed from our mines, reduce the natural resources of the country to the extent of their value. As opposed to this, the man who raises cattle, sheep or swine comes nearer to being a creator of wealth than the man engaged in any other calling, because animals are produced without any drain upon our natural resources, and we may even, with safety, claim that an increase in the production of live stock increases rather than decreases the value of the natural resources of the country.

It is estimated that more than one billion dollars are invested in live stock in Canada, so that the industry constitutes one of the really great industries of the country from a financial standpoint. It would seem natural, therefore, that an industry which is so essential to the well-being of consumers and producers alike, and which represents such a large investment of capital, should be fostered and developed along every line possible, and that so far as practicable no serious obstacles should be placed in the way of the live stock producer. We find, however, that there are many serious problems in connection with the business, and that the industry suffers from certain handicaps which are very difficult to remove. One of the serious drawbacks to live stock production is the rapid and frequently unaccountable fluctuation in price. These quick fluctuations do not in any way benefit the consumer, because the price of animal products does not follow the price of live animals, especially when the fluctuation is in a downward direction. A general lowering in prices of all products would not be serious, because production would, to a large extent, benefit from the lower cost of other products, but it is these rapid, temporary variations in the price of market animals which lead to serious loss to the producer without any benefit to the consumer.

Possibly methods of marketing live stock have advanced less than methods in any other business, and the 20th century witnesses practically the same primitive methods of marketing as existed many years ago. Fat cattle, in particular, are marketed in this country in a manner which gives no encouragement whatever to the proper finishing of the animals. The common practice is for the buyer to contract for the animals several months in advance of the time of delivery, and the result is that if feed runs a little short, the feeder is apt to lose interest in his cattle and they are put on the market in anything but satisfactory condition. The British method of selling almost all classes of stock by auction is perhaps the ideal method, though it is better suited to a compact country like Great Britain than it is to a widely spread, sparsely settled country such as we have in Canada. Just what can be done to improve our methods of marketing is difficult to say, but it is encouraging to note that the cattlemen of the State of California have formed an organization for marketing their cattle which will be observed with a great deal of interest by cattlemen in general. They have formed an organization of cattlemen within the State who have put up notes aggregating $250,000 which are deposited with a selected bank for security. When a member has cattle for sale, they are inspected, and if considered fit for market, the owner is guaranteed a certain price. If the cattle cannot be sold within the State, the organization will ship them to any point deemed advisable, and if the price obtained falls below the guaranteed price, the difference is made good from the funds of the Association. If, on the other hand, the price is higher than that guaranteed to the seller, the Association and the seller share the increase on a fifty-fifty basis. This is such a radical move in the marketing of live stock that it is mentioned here in the hope that it may start live stock men thinking more intelligently in connection with this important part of their business.

Just here it may be noted that the buying of stock for feeding purposes is a very speculative undertaking, especially during a period of inflated prices such as we have had during the past few years. Cattle feeders especially have suffered severe losses during the past year owing to the heavy slump in the price of fat cattle. The unthinking person may say that the price of feed has also gone down, forgetting that these cattle have been in the farmer's hands, many of them, six months or more. and that during the greater part of the time that he had them in his stable the farmer was compelled to feed them upon very high priced grain and other products. The fact that grain is lower in price when his cattle go to market does not compensate for the high priced grain he fed them during a greater part of the feeding period.

It has been noted that the buying of stock for feeding is highly speculative, but the man who produces his own stock for feeding purposes escapes a good deal of the risk carried by the man who purchases his feeders. This fact should encourage the finishing of live stock upon the farms where they are raised, and no doubt in the course of time our farmers will be led more and more to depend upon animals of their own breeding rather than upon buying their feeding stock.

What will be the outcome of the present situation it is impossible to foretell with certainty. The scaling down of prices is always a trying time, and results in heavy losses to many individuals; but with lower prices for feed, and with the best figures we can obtain indicating a shortage in live stock, particularly in cattle, in both Canada and the United States, it would look as though the cattle situation at least is on a fairly sound basis, and that the raising and finishing of good cattle should enable the farmer to realize prices for his grain which are higher than the market prices prevailing at the present time.

There is one other phase of the live stock industry which is worthy of attention, and that is the production of pure-bred animals for breeding purposes. One of the problems in this connection is the indifferent farmer, who uses sires which produce stock of inferior quality, and who refuses to buy even moderate priced sires which would improve the quality of his stock and increase his profits. On the other hand, we have breeders with unsold male animals on hand, of various kinds, which they would be glad to dispose of at bargain prices, and the problem is how to induce the indifferent farmer to appreciate his opportunities. While this is true, and while at times there may be more or less stagnation in the market for breeding animals, there is as yet no reason for the breeder of pure-bred animals to be discouraged. Gradually the value of better sires is becoming appreciated by the general farmer, and, while we may expect at times periods of quiet or slack demand, these conditions can be only temporary, and the man who is breeding really good stock has no occasion to worry regarding the ultimate outcome of his efforts.

In conclusion, we may add that there is no business which calls for greater all-round ability than the business of breeding high-class live stock, and the young man who undertakes to breed improved live stock has embarked upon an enterprise which will call for all the ability he possesses, no matter what his attainments may be. In this country, unfortunately, the stock breeder does not always receive the recognition which is his due, and there is little doubt that the commanding position held by Great Britain as a producer of high-class stock is due largely to the intelligent and helpful interest shown in the business by those in high positions. The late Queen Victoria was an enthusiastic admirer of live stock, and took an active part in directing the breeding operations upon the great farms under her control. The late King Edward also was a live stock enthusiast, and his example has done much to popularize live stock among all classes of the nobility, as well as to encourage all stock breeders in the Kingdom to keep before them a high ideal in connection with their business. The present King is following in the footsteps of his father in this regard, and the Prince of Wales is also proud to be called a stock breeder, and, as everyone knows, has laid the foundation of a herd in Western Canada. Gradually the importance of the live stock industry is beginning to dawn upon the people of Canada, and no doubt the time will eventually come when this great industry will receive the recognition which it deserves. In the meantime, the man who his doing honest work in the improvement of live stock may rest assured that he is engaged in a business which ranks higher in importance than almost any other line of endeavor he may pursue.

FUTURE PROSPECTS OF THE DAIRY INDUSTRY.

PROF. H. H. DEAN, O. A. COLLEGE, GUELPH.

"We can judge of the future only, by the records of the past." In the past, dairying has always been an important and profitable line of farming in Ontario, therefore, we may expect it will continue this record. We have to admit, however, that there are some drawbacks in this kind of farming, chief of which are: the necessity of tying closely to the farm and the cow, the high cost of feed and labor during the past five or six years; and the uncertainty of a market for milk in the newer lines of dairy manufacture, such as condensed and powdered milk. But there are disadvantages in all lines of farming, in all occupations and businesses, and, more or less, in all walks of life.

PROSPECTS FOR THE DAIRY FARMER.

Because of the recent drop in price of milk, butter and cheese, some dairy farmers have grown discouraged, and either have sold, or threaten to sell their cows unless prices improve. To such we would say, while it is true that milk has dropped from 10 to 25 per cent., feed and labor have also fallen to a greater degree, and since feed and labor make up from 70 to 75 per cent. of the cost of milk production, it is possible to make as much or more profit now than during the period of high prices for milk. Profit lies in the difference between the cost of production, and the selling price obtained for the article produced. If milk costs $3 per hundred to produce it, and the selling price be $3.50, the profit is 50 cents per 100 pounds. On the other hand, if milk can be produced for $2 per hundred, and sells for $3, the profit is one dollar, or 100 per cent. more than was made on the higher-cost product.

Better cows, got by the use of pure-bred dairy sires of good ancestry, and these well-reared and properly handled, so as to produce from 8,000 to 10,000 pounds milk per cow per year, or which produce 300 to 400 pounds milk-fat each, per year, will do much to lessen milk and butter costs. The presence or absence of disease among dairy stock is another important factor affecting milk, butter and cheese costs.

CHEESE PROSPECTS.

Our cheese industry is passing through more or less troublous times. The advent of the milk condensery and the milk powder plant hit many cheeseries very hard—in fact, some were stunned so much by the blow that they have not yet recovered. It would be a serious mistake to allow the cheese business to go to the wall, or even to languish, as it is the great safeguard to the health of the dairy industry in this Province. The great needs are larger and better equipped factories with better makers in charge, similar to those found in New Zealand, Canada's greatest competitor in the cheese markets of the world; payment for milk delivered on the basis of its value for cheesemaking; manufacture of finest quality of cheese; marketing co-operatively; but particularly the development of our home markets for cheese, in the smaller sizes ranging from one to ten pounds, for which there is a good demand all the time in Canadian towns and cities.

BUTTER PROSPECTS.

Our creamery business is advancing at a very rapid pace—in fact, too fast for the best results in this branch of dairying. Creameries and cream buying stations are springing up like mushrooms in a pasture field after a warm rain in the "good old summer time." Some of these are reported to be in anything but a sanitary condition, and the methods of doing business are at least open to suspicion, in a few cases. The cream delivered during the hot weather is not at all satisfactory, hence there has sprung up a system of "neutralization" and pasteurization in order to reduce the excessive acidity of cream and improve the keeping quality of the butter. The butter, after it is made is too often held at temperatures not suitable for retaining a fine flavor, consequently, there is much inferior butter in our cold-storages at the present time for which there is either no market, or if it is sold, it must be sacrificed at a loss of ten to fifteen cents per pound.

In order to improve the quality of our butter, cream grading is necessary and a difference in price must be paid for cream of the various grades. If this were done, an improvement in the quality of Canadian butter would result, which would add many thousands of dollars to the revenues of creameries and dairy farmers.

PROSPECTS FOR CONDENSED AND POWDER MILKS.

Markets at present are "draggy" and uncertain, but the future looks brighter. New markets in China, Japan, India and other countries where milk is not produced or consumed in quantity, must be secured to take the place of those furnished during war-time. These countries need the stimulus of "vitamines" found in Canadian-produced milk. If some of the philanthropic and charitable agencies would use funds collected to buy milk, and send it to China, more good would be accomplished. A Chinaman cannot exist on money. He needs food and the food should be purchased in Canada, where we have a surplus. This would be good for the Chinaman and good for business among Canadian dairymen. After the present depression is over, if it is not over now, those who have placed their faith in the powder milk and condensery branches of dairying, will have their faith rewarded. because, these, next to direct consumption of milk, are the most economical dairy food products made in Canada—or ought to be, because they contain all of the food material found in milk, in a palatable, easily digested, concentrated, non-perishable, easily transported form. These are strong points which are bound to win under favorable conditions. Present manufacturing and marketing costs are too high for the most profitable and stable results, but this is more or less true for all new lines of goods, and we may expect these to be lessened as we gain experience and the public realizes their food value.

ICE CREAM AND CITY MILK TRADE PROSPECTS.

These lines are in a healthful condition generally speaking. The larger centres of population are using more ice cream and milk every year. The large plants in cities are obliged to go far afield in order to obtain adequate supplies of milk and cream. The friction among producers, dealers and consumers is not so marked as formerly. A spirit of "live and let live" is more apparent in the milk and cream trade. The recent discoveries relating to vital properties found in milk have caused a greater demand for dairy products, but much yet remains to be done. One way this can be accomplished is by giving more hearty support to the *National Dairy Council of Canada* which is composed of representatives from all the branches of dairying in all the Provinces of Canada from the Atlantic to the Pacific oceans. This Council is carefully watching the interests of dairymen at Ottawa and elsewhere. It needs, however, greater financial support and the call for one-half-dollar per dairy farmer ought to meet with a ready response, so that the Council may have the funds needed to carry on the work in a satisfactory manner.

The National Council should be further supported by Provincial Dairy Councils. If the present Dairymen's Associations in Ontario were changed to one strong provincial organization it would be to the advantage of the dairy industry of Ontario.

Summing up the prospects for dairying at the beginning of a new year, I believe the present clouds will "roll by" before the grass season opens and that we may confidently expect a return to the favorable conditions which prevailed previous to 1914, since when the world has been more or less in a turmoil, and has not yet settled to normal. Dairymen will have to take their share of the inconveniences and losses which occur during every world or national upheaval, and also during the settling or deflation which follows. If we "dip into the future as far as human eye can see" the prospects look good far Ontario dairying.

PROF. A. LEITCH: Farming, like all other industries, must undergo a process of restoration to somewhere near pre-war conditions. Dairy industry must follow suit. But, fortunately, dairy farming was not as fully subjected to some of the influences of inflation that have caused the business revulsion through which we have just passed and the convalescing period of which we have entered within the last five months.

On account of their perishable nature, dairy products, except to a limited extent—cheese and condensed products, were not subject to war created stimulation and demand as were wheat, wool, leather and meat products. Consequently, ordinary markets were not upset by war demands, and there were no violent fluctuations either in prices or volume of product. The price, therefore, was slow to rise and will be proportionately as slow in going down. Even if a comparatively profitable condition obtains in dairy production the supply cannot be quickly increased in a space of less than three years, the time it takes a cow to grow to producing age. This better financial condition of dairy production will inevitably stimulate greater production. So it behooves all connected with the dairy industry to look well to all means for increasing the market, to hold those markets already in possession, and what is more important, to reduce the cost of production against the day when milk products reach stability in price. True that day is farther in the future than low prices for other products but will come nevertheless.

The unfortunate farmer is:

(1) The man who has bought land and stock on the basis of prices of last year and must repay that capital on low prices.

(2) The tenant who has signed a lease on the basis of high prices and must pay rent from low priced produce.

This applies to all classes of farms.

Farmers in this predicament must keep cash expenses as low as possible, observing the following:

(1) Make no improvements not absolutely necessary till costs come down.

(2) Make repairs to present machinery rather than buy new at high prices.

(3) Grow as much of the family living on the farm as is possible.

(4) Take into consideration that the great decrease in the feed cost of a horse may make horse labor relatively cheaper than tractor, and be careful in purchasing tractor machinery at present high prices.

As regards dairy-farm labor, a sliding scale, based on the price of milk would be a fair adjustment and might be worked out on the following basis:

Pre-war—$1.50 milk (per cwt.)—$30 month labor.
War—$3.00 milk (per cwt.)—$60 month labor.
After war—a price per month equal to twenty times the selling price of a cwt. of milk.

POULTRY SELECTION FOR EGG PRODUCTION.

Prof. W. R. Graham, O. A. College, Guelph.

The subject suggests that there are factors other than feeding, housing, etc., which effect egg production; or it may be said that the subject under consideration is the egg producing machine, and not the feeds or materials used in manufacturing eggs.

We also have to bear in mind the age of the hen as to years and as to maturity. Most pullets are from six to seven months of age before reaching laying condition, hence we find that late March and April are generally the months of the year to hatch chicks.

After the pullet year most hens decline in egg production: particularly is this true for the months of November and December. It would be safe to state that on the average a hen declines, roughly, two dozen eggs per annum with each year of age. However, there is considerable evidence that birds may be bred that will maintain a high production for two, three, or four years.

The selection of the high laying hen from the poor laying hen in most instances is a comparatively easy matter. Please remember that some mistakes will be made as there are birds which appear to be good layers but the trap-nest does not so record them, and likewise there are a few birds that would appear to be only average producers that are, by the trap-nest record, much better. However, in our experience there is not over ten per cent. of such birds, and probably less than five per cent. Were one to separate the good from the poor, to an average of ninety or more per cent. accuracy, the effort would be a paying one.

A laying hen is in a maternal condition, hence we find laying hens to have large, moist vents, and the pelvic arch well spread. The non-layer has a small, round vent, and the pelvic bones much closer together. Thus, to distinguish a laying hen from one that is not laying is very easy; but, unfortunately, this is not the whole story, because trap-nest records show us that some hens at times lay every day for a week, a month, or even more, while other hens lay but two or three eggs a week.

The question is "how can these two kinds of laying hens be distinguished"?

The high layer is inclined to be much more friendly than the poor layer and is much more interested in getting something to eat and a variety to eat. She has nothing to be ashamed of, hence is not much afraid of you, while the poor layer is usually shy and keeps out of sight if she can, or is inclined to be at the back of the flock.

Hens differ greatly in their heads. The high producer has a clean cut head, a bold prominent eye, and frequently a waxy comb. The head of the low layer is coarse, the eye not as prominent, the face fuller and inclined to wrinkle; or she has an old inactive appearance.

Whether there is a body shape indicating high laying is open to debate. Many are inclined to believe there is. Possibly the most striking illustration of this is the fact that many of the high laying strains developed by trap-nest record *only* have a common body type. That is, we find round bodies and beefy heads inclined to go with low production, whereas a clean-cut head and oblong, deep bodies, are more prevalent with high production. Frequently the high producer has a long, deep keel bone which extends well back and is at least as deep in the rear as it is in front. It is the depth of body at the rear, together with width, that gives the bird capacity. Furthermore, the high layer usually is flat sided, or the bird does not fit the shape of one's hand.

One of the most important points is the space between the pelvic bones and the end of the keel bone, or the part of the bird known as the "fluff." This space should be wide, soft and elastic. Such a condition indicates large capacity; if soft there is little or no inclination to put on large amounts of abdominal fat, and thinness and looseness of skin are indicative of high production.

The breeds having yellow legs and bill lose more or less of the yellow pigment as egg production progresses and, likewise, the color comes back in periods of rest. It must, however, be borne in mind that the feeding of the bird effects the rate of removal or of return. The best information we have is that this material is most abundant in green feed and yellow corn, hence one must know considerable about the method of feeding before undertaking to estimate egg production by loss of color.

During the winter months, where hens are kept indoors, a good yellow legged pullet will lose all the color out of her bill by about thirty eggs of regular laying, or say in a period of six weeks' consecutive production, and where a pullet shows a bleached bill and color gone from the front of the shanks it would suggest that she has laid about one hundred eggs.

From the above, the conditions commonly found with high laying hens are that she is active and friendly; her head is clean cut; eye prominent; the comb inclined to be waxy and fine in texture; she has a deep, long, and rather broad body; full at the fluff; is tight feathered and has a loose, pliable skin; and is not inclined to put on large amounts of internal fat. Such birds appear in the pen or yard as well balanced individuals. They are the ones that most people would select.

A MEMBER: Do you feed a great deal of corn in the winter time?

PROF. GRAHAM: We do. I would not worry one iota, as far as I am concerned, if there was no wheat in the world with which to feed chickens. Wheat is all right as a change of diet. As I see it, the farmer fails because of the lack of animal food fed to his hens. The flocks in eastern and western Ontario were in full moult in the month of July, just the same as they ought to be in November, not one, but dozens of flocks, and the owners wondered what was the matter; the matter was they didn't feed them.

A MEMBER: Is tankage good feed for the hens?

PROF. GRAHAM: Tankage is good hen feed. Do not use more than ten per cent. of the total feed fed. We use a dry mash, one-fourth of which should be high grade tankage or beef scrap. Beef scrap will cost $20 a ton more than tankage at present prices.

A MEMBER: Is it worth that much more?

PROF. GRAHAM: I do not buy beef scrap; I buy tankage. If I thought beef scrap was worth more, I would buy it. There is nothing equal to milk.

A MEMBER: Do you feed whole corn?

PROF. GRAHAM: Yes, or cracked corn. We feed cracked corn because it gives the hen more exercise.

A MEMBER: Do you use any bone meal?

PROF. GRAHAM: Practically none. I do not object to the use of two or three per cent.

A MEMBER: It will not take the place of beef scrap?

PROF. GRAHAM: No. There is no substitute for milk. The nearest substitute is animal protein, beef scrap or tankage, or butchers' offal. Cotton seed and linseed meal are practically useless for hens; they contain a lot of protein but it is a vegetable protein and the hen has not got the apparatus to handle it. The sourer the milk is the better.

A MEMBER: Why is it a small number of hens that are given special attention will lay larger eggs than where a large flock is kept? We had one egg last summer that was 6½ by 7 inches.

PROF. GRAHAM: The feed does not affect the size of the eggs much. It does a little. The size of eggs seems to be more of an inherited characteristic than a feed problem. The effect of feeding would not increase the weight of a dozen eggs more than half an ounce. When the pullet starts to lay she lays a small egg. A hen usually lays the smallest eggs about the beginning of July, at the end of the spring session and the beginning of the next one. I would not say, from the experience I have had, and the data I have been able to gather, that feeding seriously affects the size of the eggs. There is a wonderful difference in hens in the size of the eggs they lay.

A MEMBER: Does skim milk take the place of meat?

PROF. GRAHAM: They do not need meat. On the chicken farm I have, I keep cows to supply the milk for the chickens rather than buy tankage. The chickens keep the cows, and the cows keep the chickens.

A MEMBER: Do you always want the hens to have water as well as milk?

PROF. GRAHAM: Half the time ours do not get water. Our hens at the plant get water once a week, and in that water there is a pound of epsom salts for every hundred hens. We used a ton and a half of epsom salts last year.

A MEMBER: What do you give the hens in order to form the shell?

PROF. GRAHAM: Oyster shell.

A MEMBER: Do you prefer shell grit in preference to granite?

PROF. GRAHAM: Yes, very much so. If you think for a moment, you will realize that a hen that lays 200 eggs a year produces roughly two and a half pounds of shell, which is more than half the total weight of a laying hen. In order to do that the hen must have some lime material, easily digested. All our investigations would indicate that it is a difficult matter to get a hen to eat enough shell to enable it to produce a real good shell on the egg. Ordinary limestone will do its work fast enough to give you a real hard shelled egg. The nearest substitute is broken up mortar or plaster but it is usually difficult to get.

A MEMBER: Do you recommend that the milk should be sour?

PROF. GRAHAM: Better sour than sweet, but I would not worry about it. I think if you pour skim milk into a trough in which there has been buttermilk, by the time the hens get it digested it will be well on in the process of souring.

BEAUTIFYING THE COUNTRY HOMESTEAD.

A. H. TOMLINSON, O.A. COLLEGE, GUELPH.

Introducing his illustrated talk the speaker said: The many advantages which accrue from the beautification of the farm home are indeed worthy of careful study. To obtain this objective, the following suggestions should be kept in mind:

The necessity for cleaning up around the farm home; the planting of shade trees for protection during the hot summer days; shading the house and also giving the family some comfort, both in and outside; the planting of windbreaks, using such conifers as balsams, pines and cedars, on the north and west sides of the home as well as the farmstead, thus protecting the farm and homestead from cold winds, keeping down the fuel bill, and on the land preventing loss of moisture, as well as protecting the crops; shrubbery to be planted around the house to make the dwelling fit in with its surroundings by way of simple planting at the corners, and where blank spaces occur, and not shutting out light from windows or crowding shrubs too thickly around the house; and the planting of shrubbery and perennials to border on an open lawn. The open lawn should be made a feature and not planted with shrubbery or flowers, a shade tree or so being all that is necessary. The lawn may be enclosed with hedge or shrubbery planting or left open on the south or south-east side, according to what is required by the owner. Self-clinging climbers should be planted against the house such as Boston ivy, rambler roses, clematis and Virginia creeper. Trees for shutting out unsightly views may be planted, using quick growing types like Manitoba maple and Lombardy poplar or Carolina poplar. With a planting scheme, vistas must be created or preserved so that all interesting features may be seen from the house or lawn at different angles. It was especially recommended that the more common types of trees for grounds and shrubs should be planted, using native trees such as hard and soft maple, white elm, birch, beech and oak, and the bushes to be the new varieties of lilacs, tatarian honeysuckle, mock orange and bridal wreath; while such native flowers as trillium, hepatica, blood root, adders-tongue, and many others could be planted in the border and in the shade amongst the bushes and trees. On the whole, the scheme outlined is to create a home-like farmstead by the planting of trees, shrubs and flowers by making it attractive and interesting, as well as comfortable, where one may be proud to live and work and call "home."

MOTION PICTURES IN AGRICULTURE.

The afternoon session concluded by the presentation of motion pictures on several interesting agricultural topics. These were kindly presented by Mr. T. H. Severn, of the Motion Picture Bureau. The machine used was one suitable for rural communities regarding which information can be obtained from Mr. O. Elliott, Director, Provincial Motion Picture Bureau, Treasury Department, Toronto, Ontario.

OFFICIAL OPENING OF MILLS HALL.

President J. B. Reynolds, Chairman.

We have met to-night for a double purpose, incidentally to announce the formal opening of the building which has just been finished and which is intended as a residence for the students of this College, but really that we might do honor to a man who has done more in building up this College than any other man. Quite fittingly, the new dormitory which is about to be opened is to be known by the name of "Mills Hall."

Dr. Mills, as a high school teacher or as head of an agricultural college, was always noted for the accuracy of his knowledge and of his scholarship. If there is one thing that has been characteristic of the man of whom we are speaking it is that he has gone through life with his head unbowed. That scholarship of his, that knowledge and exactness and capacity for detail was the one quality which, perhaps, as much as any other, enabled him to carry through the first difficult years of his association with this College. No single detail in the work of the men, whether in the class room, in the field or in the garden, could escape him. He was master over the whole circumstances.

From the year 1879, when Dr. Mills assumed charge of this College, until twenty-five years later, he was a very busy man, even though the number of students was small. All this time Dr. Mills exhibited to the public gaze a courage and singleness of purpose, as well as devotion to duty, that won for him all the honor that we may be disposed to confer upon him. Not only has he deserved the honor but he has won, by his example, his accuracy, his keen scholarship and careful attention to duty—our highest praise. No doubt those qualities have had their effect on the character of the men who were turned out from this institution.

It would be an invidious thing for me to mention names, but from the Pacific to the Atlantic, in Canada and in the United States, you will find graduates of this institution who are filling posts of great honor and trust. Their ability to fill such positions has come, undoubtedly, in a large measure from the example which they saw in the head of the institution while they were students here.

To-day we have the tradition in the College in which the young men accept the responsibility for their own conduct, and we have a system of student government which is, from my point of view at least, exceedingly satisfactory.

For the counsel of the young men who are here in attendance at this College, though you number manifold the number that was in actual attendance in those early years, I want to say that you will have to rise to a high level of character and achievement, however great your advantages are and superior over those of the men who attended here twenty-five or thirty years ago, if you will equal the records of the men who graduated from this institution in Dr. Mills' regime.

A college is not made up of buildings, laboratories or expensive equipment; a college must first of all be furnished with wise leadership, thorough and painstaking teachers, and blest with a body of students who are capable of taking in that teaching. With that combination of circumstances, no matter how poor the physical equipment may be, such a college will amount to something, and also the men who are turned out from its doors. Let us not rely too much on merely physical achievement, although this college attained, from very small dimensions in 1879, to quite respectable dimensions of physical growth in 1904 when Dr. Mills left the institution. I do not mean to enumerate all that physical equipment which was acquired in Dr. Mills' time but will mention two of them, both of which were grants due to the munificence of private benefactors, and were undoubtedly granted to this institution because of the respect and esteem in which Dr. Mills was held by the donors. I refer to Massey Hall which was granted to this institution by the generosity of the Massey estate about twenty years ago, and to the Macdonald Institute and Macdonald Hall which very shortly afterwards were given to the institution by the late Sir William C. Macdonald.

Let me repeat that the purpose of a college is the conservation of human resources. The purpose of this college, in addition, has been the conservation of material resources in the soil, and I have always noticed, from my association with Dr. Mills, that both of these were his chief cares. The special function of the agricultural college is the improvement of farming and what is really the higher function is sometimes lost sight of in a technical institution, which is the conservation of human resources and the development of character. To this latter function Dr. Mills devoted special attention, and for the benefit of those who are now at the College, teachers and students alike, I wish to say that we shall do well if, under present guidance and auspices, we succeed in the quality of work we do, to the degree in which this College succeeded under the guidance of Dr. Mills.

I have very much pleasure in introducing to you Dr. James Mills, who for twenty-five years was President of this College.

DR. JAMES MILLS.

LIBRARIAN AND SUPERVISING OFFICER, BOARD OF RAILWAY COMMISSIONERS FOR CANADA, OTTAWA.

If I were capable of blushing, I would blush now surely after such an eulogy. I understood I was coming here to assist you in opening the new building and had no idea it was the intention of the President or anyone to say a word with regard to myself and the work I tried to do during the years I was in charge of this college.

I do not know what I can say to you to-night. The good President of the College has gone pretty well through the reminiscences; there is always more or less interest in reminiscences in connection with a successful institution, whether it is a college or anything else. In 1906 I travelled pretty well through England, Ireland, Scotland and Switzerland and found that Guelph was better known in those places than any place in the Dominion, outside of Montreal and Toronto. Guelph is well known to-day.

I did not come to talk very much about reminiscences. When I came here, however, this institution was a political football between the two parties in Toronto. The party in power defended everything, whether right or wrong, that was done here; and the party in opposition attacked everything, whether right or wrong. The farmers also believed that we were doing nothing right. We got rid of that impression largely through the influence of the Farmers' Institutes which brought farmers of all shades of politics together. The Farmers' Institutes, bringing excursions to the College each year during the month of June, and the Experimental Union conducting various experiments throughout the Province, helped very much in dispersing that attitude on the part of the farmers generally. At the time I left this institution politics had nothing more to do with it, and we had both political parties supporting the institution and those men became disposed to pay the expenses. As you know, money must be forthcoming to pay adequate salaries to the members of the staff, including the other necessary expenses.

The great factor in every school, college and university in the country is the kind of men and women who are teaching or lecturing, or acting as professors, and I say the very best should be secured.

I have looked over the new dormitory and it is a very fine building, and of the very best workmanship. The Province has put up that building at great expense and the young men who are to occupy it and who have come here for an education are indeed fortunate to be able to live in such surroundings. I would say to the boys "play the game." There are certain rules and regulations in every game and I ask you to play honorably, observing the rules and regulations in accordance with the student government which you have. I have great faith in the student government, under proper supervision.

I want to say to the boys who are here now that the best this College, or any college, can do for you is to give you a start. When I graduated I expected I would know nearly everything, but when I reached that point I felt I hardly knew anything and thought it would be better to get a degree. If a man stops when he obtains his degree he will never amount to anything; he must start out on some line for which he will be known.

I never felt that I had any special talent, except perseverance, that was born in me. I would "do dog or die" no matter what the consequences were. One must have grim determination never to give in—make it go through. In the University of Toronto it was lately said to the young men that they did not really measure carefully the proper proportion between study and social functions. You must decide this for yourselves and not waste time, as you are here for an education.

I will tell you three things to avoid: Bad company, the use of intoxicating drink, and gambling.

You should have a motto. My motto is this, "Not well enough, but in the best manner possible." When you sit down to write a letter or prepare an address, do not be satisfied with "well enough" but ask yourself, is that the best I can do with my ability, education and opportunities. If every man did that, more work would be accomplished.

I cannot tell you how pleased I am to have the pleasure of meeting such an audience as this. I did not come here to be glorified, nor did I know there would be the kind words said about me in connection with the opening of this fine building. I thank you for your attention.

ADDRESS.

Mr. W. Bert Roadhouse, Deputy Minister of Agriculture, Toronto.

It is my privilege to convey to you the regrets, greetings and good will of the Minister of Agriculture, who had expected to be present on this occasion until at the last moment it was found there was a confliction of dates which prevented him from being with you. It is further my pleasure to add a few words to those which have already been said on this historic occasion. After the speeches of the President, and the ex-President of this institution, speeches so rich in reminiscence and so wise in counsel, it is necessary for me to add but little to what has been said.

Reference has been made to the fact that there are two or three parties to this occasion; there is the distinguished past-President whom we honor, there is the College itself which is enriched by this new building, and there is also the Department of Agriculture and the Government of Ontario under whose administration these things have been brought about. It is on behalf of the latter of the triple partnership that I beg to say a few words on this occasion. On the occasion of the opening of a new building such as this, we should pause for a moment or two to contemplate the significance of all that is entailed, and to realize once again the important part which such a building plays in the moulding of thought and the shaping of events in the progress of mankind. In all lands we find that buildings of state, buildings of church, buildings of education have been buildings around which centre the interest of every student of current events and every student of history. Think, then, I ask you of the buildings of education. Go, if you will, to the Old World and observe there, as many of you have done, the wealth of thought as well as material things which have been lavished upon educational buildings in creating and maintaining the great seats of learning which attract attention of all learned peoples no matter where they live. Walk amid the cloistered silences of the courts of Oxford and Cambridge, contemplate the seats of learning in European countries, and you will, I am sure, not only be impressed with the charm and beauty of it all but there will come back to you the haunting spirits of those who have gone before and which seem to make those buildings live in the succeeding generations. Before you will pass the names of those who have illumined the pages of literature, those who have set music to poetry, those who have been leaders in statesmanship and have brought renown to themselves as well as glory to the nations which they served.

I need hardly say that in this new land we would do well to pause and emphasize these various steps in our progress from small beginnings to the greater things which have been achieved and the greater things which we believe are yet to be. An educational building, whether it be only the little red schoolhouse or whether it be the more stately building of college or of university, is the centre of the aspirations of youth, and of the memories of old age. So it is with the buildings on this campus, and so we hope it ever may be with the building which we are to-night formally opening and dedicating to the purpose for which it has been brought into being. So I say may the hospitable walls of this building which has been erected yonder not only minister to the creature comforts of those who are fortunate to cross its portals, but may it also promote that good fellowship which has been mentioned before as such an important phase of our education at the present time; may it further witness the birth of high resolves to greater achievement; may it temper the discouragements which are inevitable, and inspire to renewed efforts and higher ideals. Great characters sometimes say their best things in their quiet soliloquies, as Dr. Mills has reminded us. If so it be among the occupants of this boys' residence, may these walls be discreet walls, as they hear the tender confidences inspired by the glances across the way at Macdonald Hall, so near and yet so far.

It is not for its architectural grandeur alone, although that is creditable, it is because of the part which it is likely to play in moulding the thoughts and shaping the destinies of those who come in contact and have the pleasure from day to day of living there, that we to-night lay such emphasis upon this opening ceremony. As has already been said, this is not merely a building, but a building with a name. I do not know exactly who it was who first suggested that "Mills Hall" would be the appropriate way of perpetuating the name of him who for a quarter of a century was President of this institution; but I know that when after having been approved by the former Minister, the matter came for final decision and approval a few weeks ago before the Prime Minister and the present Minister of Agriculture it was most heartily endorsed, and the work was immediately completed, and consequently we have this ceremony here to-night.

It is fortunate, I am sure, for all of us that this ceremony is graced by the presence of Dr. Mills, who is enjoying even at his mature youth the vigor of mind and of body which he has displayed to us to-night in the address to which we have just listened with so much pleasure and profit. I cannot help but think of that picture given us by James Whitcomb Riley of one "Who muses on the faces of the friends that he has known." So it is that Dr. Mills comes to us to-night, and if I might borrow the language of that beautiful imagery I am sure I can say that it has been a "fragrant retrospection" which he has given to us, as he has plucked for us the fruits from "memory's mellow vines." What must be the legacy which is his to-night of seeing the dreams of yesterday the realities of to-day, for assuredly that is the case to-night.

Our President has given many facts of interest in reference to the period through which Dr. Mills presided over this institution. I will add only a few figures which I happened to note in some records in the Department. When Dr. Mills came to this institution there were 162 students; and when he left there were 728. When he came there were 8 teachers; when he left there were 29. When he came the expenditure was $26,000; when he left it was $87,000.

Those are some of the facts which give an outline of the progress which has been made, but the real facts which must be added to those are the human factors which have been moulded under his guidance and which have played such a large part in various spheres of activity over this entire American continent. So, I would say that this building to-night is a supplement to the others which already adorn this campus, and a hopeful prophecy of the future. We have made progress, this institution has made progress, but there is no reason for thinking that that progress is at an end, as there is no reason for believing that the need has been fully met. There is still great room for development in the future, and here comes that important factor which has been mentioned repeatedly to-night, the factor of financial support and backing which is necessary in order that this institution shall accomplish the things which need to be done. In this regard Dr. Mills has told you of the difficulties of the past. One has but to look over the records to realize how concrete and real those difficulties were. In looking over the records of motions in the Legislature of Ontario, even before Dr. Mills' time, I noted one, for instance, striking off $500 from the salary of the President; another one, cutting down of maintenance from $18,000 to $16,000. These were the matters which seemed to take up the time and occupy the thought of the legislators of those old and degenerate days. We live in a more advanced age and both the Federal and Provincial Parliaments have got beyond the stage of these small criticisms and small appropriations. About eight years ago there was an Act passed at Ottawa which provided for an appropriation of $10,000,000 to be expended on agricultural education and demonstration work over a period of ten years. This money was to be expended through the organization of the Provinces and was apportioned *pro rata* in accordance with the population. This money has been received by the Province of Ontario each year since that time and it is from these moneys that we have been able to finance the erection of the residence which we are formally opening to-night. I mention this in order to give credit with regard to the appropriations, and for another reason. I mention it because that appropriation has now gone eight years on its ten-year course, and unless within the next year or two an effort is made to bring about a renewal of that legislation, the financial support which has been forthcoming will in the natural course of events lapse, and it is necessary to have public opinion enlisted in order to bring about a continuance of this financial backing and support which means so much to the development of agriculture in this Province.

As to that, I have no fear; I feel confident that at the proper time the proper legislation will be forthcoming. In addition to that we also have the generous support of the Legislature of Ontario, and in that connection I need only mention the fact that compared with the $87,000 which was expended in the closing year of Dr. Mills' regime, an expenditure of about $471,000 marks the opening year of President Reynolds' regime. That is indeed proof and illustration that our public men have come to appreciate that money can be spent and spent well, on those things which develop our educational institutions. I believe, while I do not wish to go into any detail at the present time, that the days in which we live and the days which are immediately before us bring to us problems so acute and so important that they can only be solved by the concentrated and combined intelligence of the whole people of the Province of Ontario. This can only be brought about by the development of our educational institutions to the very fullest possible degree.

In conclusion, I would simply say that I concur in all that Dr. Mills and President Reynolds have said in reference to the usefulness and at the same time the limitations of the buildings at an institution. Buildings are necessary, they are the tools with which the staff must work, they have their place, but no institution will have enduring fame by the buildings of the finest architecture. An institution of learning must base its demand for continued support upon the manhood and womanhood which it turns out. Because this institution has done that in the past it enjoys the large measure of approval and support which it has at the present time. It is not necessary for me to mention in detail the prominent men this institution numbers amongst its graduates; one is the Prime Minister, many are Cabinet Ministers or ex-Cabinet Ministers, there are College Presidents and others occupying high positions on both sides of the line. Years ago, in many cases, a graduate of this institution was compelled to go across the line to get recognition, but that recognition has now come to its place in this Canada of ours, not only in Ontario, but also in the other Provinces. It is upon a continuance of this high standard of intelligence and efficiency, and upon the application of those principles to production and marketing that the future of this institution must rest, and I believe that we can look with every confidence to the development and discharge of those high responsibilities which go with the increased opportunity afforded by the additional equipment which is now being brought about.

It is now my pleasure, on behalf of the Minister of Agriculture, to declare "Mills Hall" formally opened. With every respect and affection to the past-President whose name it bears, with every appreciation of the purpose which it is to serve as a part of this institution, I dedicate it now in the name of a great man and to the service of a great industry.

TRIBUTES FROM MEMBERS OF ALUMNI ASSOCIATIONS.

T. G. Raynor, Eastern Ontario Agricultural Alumni Association.

I am sure I feel it an honor, as well as a privilege, to be present on this occasion and to bring the greetings of the Eastern Ontario Agricultural Alumni Association.

For some years its has been the practice during the Winter Fair at Ottawa for the graduates of the Ontario Agricultural College to meet with Dr. Mills. On these occasions we exchanged reminiscences of our college life, and the doctor was always interested in what we were doing in connection with agricultural extension work.

Only recently I met Dr. Mills when I was attending a course of lectures being given by Professor Morris, of Queen's University, at Ottawa, and at the close of the lecture he asked the most intelligent questions which were raised. Dr. Mills has been a great scholar, and has helped many a student because of the fact that he was able to draw out of the students a great deal more than would have come out in any other way.

No meeting of our Association could be called to send a formal address, so I bring the greetings of that organization. In our Alumni Association of Eastern Ontario we have taken in graduates of the Macdonald College and other agricultural universities, as well as some of the leading men who are doing agricultural work in Government Departments. We thought it was only fair and wise to extend the limit of our Association in that way. I met one of our members the other day who had been up to Guelph recently, and he expressed his great pleasure at being able to come here after an absence of seventeen years. It does us all good, and I have been privileged, perhaps the greatest, in being permitted to attend the Experimental Union meetings.

I will conclude with this remark, that:

> "Lives of great men all remind us
>   We can make our lives sublime,
> And departing leave behind us
>   Footprints on the sands of time."

I look upon Dr. Mills as one of our leading agriculturists who is known beyond this Province, and his memory is now commemorated in that splendid hall, and a great many of the sons of ex-graduates will be privileged to enjoy accommodation far better than some of us had in 1879.

LT.-COL. W. J. BROWN, WESTERN ONTARIO O.A.C ALUMNI ASSOCIATION.

I consider it a very great pleasure to be here to-night and take part in these exercises in representing the Western Ontario O.A.C. Alumni Association. I would like to bring to the Experimental Union the greetings and good wishes of our Alumni Association of Western Ontario, and to express our appreciation of the excellent work being done through that institution which we hope may be continued for many years to come. I would like to say, also, that we desire to place on record our appreciation of the work done by the Secretary of the Experimental Union, Dr. C. A. Zavitz, and we hope that he may be long spared to continue directing the efforts of that excellent institution.

It seems to me that we are met under very happy circumstances in having not only many old friends and new friends at the College, but in also having with us our very dear friend, Dr. James Mills. We are glad that the powers that be have decided to designate the new dormitory "Mills Hall." It will be a constant reminder for years to come of the great services rendered by Dr. Mills to this institution, to this country, and to the thousands of students who have been privileged to come here for shorter or longer periods. I hope that his shadow may never grow less and that he may be long spared to think over the years that he spent here.

We consider it very fortunate, indeed, that Dr. Mills has graced this occasion by his presence. His good nature has always been a marvel to me, and that is one of the outstanding characteristics which was omitted to be mentioned in the programme to-night. Before he was elevated to the dignity of jurist he was a teacher, and being patient, sympathetic, magnetic, and so enthusiastic one could not fail to understand his subject. His good nature filled his classroom like beams of sunshine; how he did it, I do not know, for I am sure that students in those days, as now, were as impervious to intellectual infection, but Dr. Mills always retained his good humor, patience, sympathy and good fellowship. It was, in fact, his personality that moulded our lives, that formed our characters, and elevated us to the higher plane of study and thought. We learned from him because of the man he was, that the object of education is the building of character, and the test of character is service. We also learned from him what personal inspiration means. Many other men have helped to make this College famous, and we desire to pay them tribute, but the man who formed ideals and made the students of this Agricultural College stand for something was Dr. James Mills.

S. E. TODD, CENTRAL ONTARIO O.A.C. ALUMNI ASSOCIATION.

I came here some years ago, just after the time that Dr. Mills ceased to be President of this College. I remember that I received some very vivid impressions at that time. Perhaps the most vivid was the feeling that was apparent in the staff with whom I began to get acquainted, and in the minds of the ex-student body with which from time to time I came in contact. The impression that left its imprint on my mind was with regard to Dr. Mills. When men mentioned Dr. Mills they spoke of him as one ambitious in literature would speak of Shakespeare; as one ambitious to be a painter would speak of the great masters—they spoke of him with a reverence and with a depth that showed their feelings toward Dr. Mills, and how greatly they appreciated what he had done for them, for the College, and for the Province of Ontario. That impression never left my mind with regard to those great men who made, or did so much toward making this Agricultural College what it is, and toward making the school that we all love and delight to come back to, the great institution which it is to-day. I am delighted, indeed, to be able to convey to you the greetings of the Central Ontario O.A.C. Alumni Association. This organization has afforded me the great pleasure of renewing again the acquaintances and forming new friendships with the men who come back as ex-students of the O.A.C.

I may say that during the last few months a committee has been at work with the Eastern, Western and Central bodies already organized for the purpose of forming a Provincial organization. We hope within the next two or three months to launch a Provincial organization which shall embrace every ex-student of the O.A.C. having one year's standing. That is something I shall be glad to have an opportunity of speaking about for a moment because while we look to the men who have been through this College and are now out, we are especially desirous of enlisting the support and securing the membership of every student who is now at the College. It is the expectation and hope that we will, by means of a Provincial Alumni organization, be able to place in the hands of the President, and of the women and men who have worked so hard for this institution, a means by which this College may be built for future generations.

I wish to say again what a great pleasure it is to convey my small tribute to the greatness of the man whom we all delight to honor to-night.

W. H. Grant, President of the Students' Council, O.A.C.

It is my privilege this evening to express, on behalf of the student body, the gratitude and appreciation which we feel for the new building which has just been placed at our disposal, and also in some small way to pay our tribute to Dr. Mills. While we have not had to put up with the inconveniences of coal oil lamps, or having to get up at six o'clock in the morning, yet we feel that we have borne sufficient hardships in having to, for the past two years, travel up that long hill towards the College every morning in order to be at lectures at a quarter to nine.

And so it is with the greatest appreciation that we welcome the opening of this new residence. Although we are not personally in touch with Dr. Mills we are quite familiar with his high ideals and it is with the greatest of satisfaction we learn that the new dormitory, under the name of Mills Hall, is significant of the past-President who has accomplished so much for the College.

In closing, I would like to make a suggestion, that we adopt as our motto at "Mills Hall" the one which has made Dr. Mills in no small measure the great figure that he is in Canadian agriculture, viz.: "Not well enough, but in the best manner possible."

Dr. Mills: I would like to convey my sincerest thanks to those who have spoken words which I did not expect to-night, and many of which I do not deserve. They come from the kindness and double kindness of the hearts of these young men. One thing which has pleased me since I left here is that wherever we have found our boys in this Province, other Provinces, or in the United States, they have made good. It is their personality and their determination to do the very best that is in them. "Not well enough, but in the best manner possible."

Ontario Department of Agriculture

REPORT

OF THE

Stallion Enrolment Board

OF

ONTARIO

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

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To His Honour LIONEL H. CLARKE,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of Your Honour the Report of the Stallion Enrolment Board for 1920.

Respectfully submitted,

MANNING W. DOHERTY,

Minister of Agriculture.

TORONTO, 1920.

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ONTARIO STALLION ENROLMENT BOARD

Lieut.-Col. Robt. McEwen, London, Ont., *Chairman.*

John Gardhouse, Weston, Ont.

F. C. Grenside, V.S., Guelph, Ont.

Peter Christie, Manchester, Ont.

R. W. Wade, Parliament Buildings, Toronto, *Secretary.*

REPORT

OF THE

STALLION ENROLMENT BOARD

To The Honourable Manning W. Doherty,

Minister of Agriculture for Ontario.

Sir,—The Ontario Stallion Enrolment Board has the honour to transmit herewith its report for the stallion year ending July 31st, 1920.

It will be noted the number of stallions enrolled for 1920 is 1,659, which with 18 horses which have received an interim certificate and 6 which have paid fees, but not having furnished sufficient information to this office, have not received enrolment, make a total of 1,683 for the year 1920. The table of breeds show that over 80% of enrolled horses belong to the heavy draught breeds, and of the heavy draught 70% are Clydesdales. Of the light breeds the great majority are Standard-breds.

The high prices secured for other classes of live stock and the greater risk and expense in rearing horses has tended to lessen breeding operations in this Province, and as a consequence first-class horses are commanding very high prices. As a result horse raising should prove very profitable in Ontario for the next few years.

The increased cost of stallions and the much greater increased maintenance cost of same, along with the light demand for service, has placed the stallion owner in a very unfavourable position. In order to secure the best horses for breeding purposes in this Province it should be the policy of the mare owner to patronize horses of outstanding quality. The stallion owner and the owners of mares are mutually dependent on each other for success, and it is hoped that the breeders of horses generally throughout the Province will encourage by their patronage the introduction and using in the Province of the highest type of stallion.

Lt.-Col. Robert McEwen, *Chairman.*
R. W. Wade, *Secretary.*

Toronto, September 20th, 1920.

SUMMARY OF ENROLLED HORSES FOR THE YEARS 1913-1920

County	1913	1914	1915	1916	1917	1918	1919	1920
Brant	28	44	43	35	41	27	14	17
Bruce	103	114	99	91	95	93	76	76
Carleton	65	76	70	54	60	52	51	42
Dufferin	51	58	57	51	48	46	48	42
Dundas	44	41	43	38	29	16	13	14
Durham	60	63	67	52	43	42	37	34
Elgin	65	75	76	46	50	36	36	23
Essex	69	91	94	76	61	40	29	32
Frontenac	31	42	42	38	35	23	16	16
Glengarry	34	48	54	48	43	29	27	22
Grenville	37	32	28	21	21	20	14	13
Grey	108	121	118	94	87	79	67	73
Haldimand	47	50	54	50	38	32	32	26
Halton	27	29	25	32	30	23	15	16
Hastings	82	87	72	65	59	50	52	30
Huron	112	142	130	123	114	99	83	90
Kent	130	136	133	122	89	69	61	52
Lambton	113	134	126	108	88	71	71	71
Lanark	58	76	71	61	56	44	42	32
Leeds	50	52	40	25	25	19	21	16
Lennox & Add.	45	42	33	29	29	24	13	10
Lincoln	27	33	31	15	16	16	10	17
Middlesex	128	158	154	142	112	73	68	78
Norfolk	57	60	53	40	39	24	22	20
Northumberland	50	51	48	53	43	28	31	34
Ontario	101	108	124	96	95	80	77	69
Oxford	77	86	90	77	57	36	35	36
Peel	52	72	70	65	47	46	42	37
Perth	81	102	105	86	67	71	74	73
Peterboro	46	46	52	44	50	32	34	32
Prescott	46	57	42	37	27	20	8	13
Prince Edward	29	27	36	26	28	19	15	14
Renfrew	85	91	78	55	62	53	45	37
Russell	39	52	38	33	34	26	18	18
Simcoe	139	157	145	120	100	82	74	70
Stormont	32	35	27	23	23	20	11	12
Victoria	48	66	62	70	68	53	37	36
Waterloo	48	59	54	47	45	43	44	41
Welland	17	28	28	26	22	14	12	12
Wellington	104	117	115	87	82	68	58	58
Wentworth	50	60	56	35	30	22	18	21
York	119	148	157	135	121	101	110	99
New Ontario	12	16	120	129	110	127	73	78
Outside points	14	19	17	21	14	5	15	7
Totals	2,760	3,201	3,177	2,731	2,433	1,993	1,729	1,659
Percentage of Grades	36	34½	32	30	26	23	0	0

SUMMARY FOR THE PROVINCE OF ONTARIO SHOWING BY COUNTIES THE NUMBER OF THE DIFFERENT BREEDS OF STALLIONS ENROLLED DURING 1920.

County.	Clydesdales.	Percherons.	Shire.	Belgian Draft.	French Can.	Suffolk.	Standard Bred.	Thoroughbred.	Hackney.	French Coach.	German Coach.	Ponies, Morgans and Hunter.	Total Horses Enrolled.
Brant	5	7		3		1	1						17
Bruce	52	10	1	2	2		8					1	76
Carleton	24	4		2	1		8	1	2				42
Dufferin	34	1					6		1				42
Dundas	5	5					3		1				14
Durham	22	2	1		1	1	4		2		1		34
Elgin	8	7	4			1	2				1		23
Essex	9	16	1	2			3		1				32
Frontenac	2	6			1		7						16
Glengarry	9	7					3	1	2				22
Grenville	7	1					4		1				13
Grey	59	6					7		1				73
Haldimand	13	6	1				4		2				26
Halton	5	7	1					2	1				16
Hastings	13	5					11		1				30
Huron	56	15		2			16		1				90
Kent	16	20	5	2			8					1	52
Lambton	42	13	3	1			12						71
Lanark	18	4	2	1			5		2				32
Leeds	6	4	1				4		1				16
Lennox and Addington	5	5											10
Lincoln	6	4					7						17
Middlesex	34	31					10				2	1	78
Norfolk	7	12					1						20
Northumberland	15	9	1			1	5	3					34
Ontario	57	7					3		2				69
Oxford	18	9					7		1		1		36
Peel	28	2	2				3	1	1				37
Perth	46	8		1			18						73
Peterboro'	20	9					2		1				32
Prescott	6	2		1	1		3						13
Prince Edward	3	9					2						14
Renfrew	17	10	1	1	1		5		2				37
Russell	10	4		1	2		1						18
Simcoe	45	17	2				5		1				70
Stormont	6	2					2		2				12
Victoria	29	3					3		1				36
Waterloo	23	8					8		1		1		41
Welland	2	3	1	1			5						12
Wellington	41	9					4	2	1			1	58
Wentworth	7	4		1	1		7	1					21
York	56	15	4	1			12	5	4	1	1		99
New Ontario	39	23	1		1		11		1	1	1		78
Outside Points	5	1										1	7
	930	352	32	22	11	4	240	16	36	2	8	5	1,659

ENROLMENT BY COUNTIES

BREEDS: Clydesdale, Hackney, Suffolk, Morgan, Shire, Percheron, Thoroughbred, Belgian Draft, French Coach, French-Canadian, Standard Bred, German Coach
ABBREVIATIONS: Clyde. Hack. Suff. Morg. Per. Thor. Bel. Dr. Fr. Ch. Fr. Can. St. Br. Gr. Ch.

BRANT COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Jauze (imp.)	3822	3841	Per.	4396	1909	N. Dyment	Brantford (R.R. 4)	F. 1916	1
Cholderton Prime Minister (imp.)	76	2801	Suff.	3313	1911	W. J. Roddick	Brantford (R.R. 4)	F 1918	1
Cadet (imp.)	1600	2954	Per.	607	1905	Henry Grover & Chas. Mott	Burford (R.R. 2)	S. 1915	1
Royal Saxon King	21902	5666	Clyde.	6328	1915	Alexander Johnston	Burford (R.R. 3)	S. 1920	2
Garnet Chief	21349	5556	Clyde.	6232	1918	D. B. Campbell	Cainsville	S 1920	1
Islam (imp.)	3031	1358	Per.	618	1908	Ira Baker	Cainsville (R.R. 1)	S. 1915	1
Brant Glory	5524	5003	Per.	5487	1915	J. S. Bawthinhimer & Sons	Cainsville	F. 1919	1
Oak Park King	18917	5579	Clyde.	6258	1913	Malchie Wright	Hagersville (R.R. 6)	S. 1920	1
Kairouan (imp.)	3819	2953	Per.	3505	1910	Daniel House & J. H. Myers	Middleport (R.R. 1)	S. 1919	1
Hannibal	9698	5499	Per.	6107	1915	Haas Brothers	Paris	F. 1919	1
Enghien	675	395	Per.	381	1904	C. W. Gurney	Paris (R.R. 3)	F. 1912	1
Boulder Grange Du Fosteau	886	4960	Bel. Dr.	5408	1915	C. W. Gurney & Sons	Paris (R.R. 3)	F. 1918	A1*
Ameronto	1942	5513	Bel. Dr.	6144	1918	C. W. Gurney & Sons	Paris (R.R. 3)	F. 1919	1
Boulder Grange Eman	1358	5514	Bel. Dr.	6143	1917	C. W. Gurney & Sons	Paris (R.R. 3)	F. 1919	1
Baron's Charm (imp.)	9238	90	Clyde.	683	1903	J. J. Foran	St. George	F. 1912	1
High Private	747	2933	St. Br.	3453	1907	Clemons Brothers	St. George (R.R. 2)	F. 1914	1

BRUCE COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Duke of Connaught	17129	5300	Clyde.	5536	1915	William Askin	Allenford (R.R. 1)	F. 1919	1
Prince Armadale	18614	5298	Clyde.	5956	1916	Joseph Blakely	Allenford	S. 1919	1*
Richardson Model	20526	5478	Clyde.	6064	1917	Archie Crow	Allenford	S. 1919	A1*
Favori (imp.)	8490	2246	Per.	1873	1901	Henry Collins	Armow	F. 1914	1
Red McKinney	1002	1151	St. Br.	1688	1905	M. Collins	Armow	S. 1913	1
Prince of Palmerston	14925	2549	Clyde.	3234	1910	Norman N. Smith	Brinkman's Corners	F. 1918	1
Puri	1027	2165	St. Br.	1613	1901	James Ward	Brinkman's Corners	S. 1913	1
Ryecroft Model	12379	3376	Clyde.	3845	1910	Cargill, Limited	Cargill	F. 1918	A1
Racipault (imp.)	3124	1066	Per.	597	1902	John Bechberger	Cargill (R.R. 1)	F. 1912	1
Cumberland's Glory (imp.)	15788	3614	Clyde.	3970	1911	James D Campbell	Cargill	F. 1918	A1
Sylvi (imp.)	1350	319	Per.	128	1903	Geo. Bechburger	**Chepstow**	**F. 1912**	1

Royal Purse (imp.)	11857	91	Clyde.	686	1908	Walter Agnew	Chesley (R.R. 1)	F.	1917	A1
Mistletoe Mac	14501	3886	Clyde.	4158	1912	James Vancise	Chesley	F.	1918	1*
Integrity (imp.)	11864	2218	Clyde.	2949	1909	L. & N. Bender	Clifford (R.R. 1)	F.	1916	1
Full Fledge (imp.)	15304	5103	Clyde.	4626	1911	August Mannerow	Dobbington	S.	1918	1
Levi Baron	21185	5422	Clyde.	5967	1917	Neil Dow	Dobbington	S.	1919	1*
Silver Cloud (imp.)	8797	138	Clyde.	718	1905	Thomas Ferris	Dobbington	F.	1914	1
Undefeatable	19304	5340	Clyde.	5968	1916	Robert Purdue	Eden Grove	S.	1919	1*
Knottingly Baronet (imp.)	988	647	Shire	687	1905	William J. Atton	Elmwood (R.R. 1)	F.	1914	1
Prince of Kirkside (imp.)	5883	12	Clyde.	244	1899	Anthony Symon	Glamis	F.	1912	1
King Brice	1683	3958	St. Br.	4163	1911	Charles Sewers	Greenock (R.R. 1)	F.	1918	1
Gartly Baron	14625	1319	Clyde.	1879	1911	Andrew Good	Greenock	F.	1918	1
Linton Again	18098	5690	Clyde.	6301	1910	Levi Good	Greenock	S.	1920	1
Ichnobate (imp.)	3858	2875	Per.	3387	1908	Levi Good	Greenock	S.	1916	1
Aurorin (imp.)	1923	5332	Bel. Dr.	5983	1912	Levi Good	Greenock	S.	1919	1
Kossuth (imp.)	3003	1160	Per.	1630	1910	Levi Good	Greenock	S.	1918	A1
Chlordyne (imp.)	13547	353	Clyde.	335	1906	Levi Good	Greenock	F.	1914	1
King's Selection	17780	4841	Clyde.	5399	1915	John T. Carruthers	Holyrood	F.	1918	1*
Green Mountain Rifleman	5451	1287	Morg.	1501	1906	R. McLeod	Kincardine	F.	1914	1
Baron Royal (imp.)	3981	329	Clyde.	215	1900	Samuel McComb	Kincardine (R.R. 4)	F.	1912	1
Baron Byron (imp.)	7744	677	Clyde.	104	1903	Richard Needham	Kincardine (R.R. 2)	F.	1912	1
Buchlyvie Mhor (imp.)	11300	2253	Clyde.	1710	1909	R. Robinson & Company	Kincardine (R.R. 2)	F.	1916	1
General Cormier	4372	4654	Per.	5035	1914	Ben Elliott	Kincardine	F.	1919	1
Diplomatist (imp.)	15278	3192	Clyde.	3632	1908	Charles Creech	Kincardine	S.	1917	1
Jake of Fairfield (imp.)	11757	573	Clyde.	207	1909	David Jeffrey	Kincardine	F.	1916	1
Silver City	21856	5496	Clyde.	6113	1918	Wm. Semple	Kincardine (R.R. 3)	F.	1919	1
Annandale (imp.)	7150	1055	Clyde.	860	1904	Albert Swanson	Lion's Head	F.	1912	1
Promoter (imp.)	16335	3876	Clyde.	4256	1909	Kenneth Farrish	Lucknow	S.	1917	1
Our Choice	14696	822	Clyde.	1905	1910	Stuart E. Robertson	Lucknow	F.	1918	1
Cheery Worthy	1230	4614	St. Br.	4168	1910	Albert Millson	Lucknow	S.	1918	1
Don Roma	2393	4871	St. Br.	5395	1900	Duncan M. Charles	Lucknow (R.R. 3)	S.	1917	1
Prince Carruchan	20400	5236	Clyde.	5806	1917	William R. Martin	Lucknow (R.R. 3)	F.	1918	1*
Max	909	4204	Bel. Dr.	4681	1913	Anthony Strause	Mildmay	F.	1918	1*
Baron Mac	21211	5618	Clyde.	6303	1916	Michael Fischer	Mildmay	S.	1920	1
Fyvie Peer (imp.)	16338	3874	Clyde.	4253	1912	W. S. Airth	North Bruce	F.	1918	1*
Coronation	12339	2408	Clyde.	3130	1910	Duncan Stewart	Paisley (R.R. 1)	S.	1917	1
Gay Boy	21590	5443	Clyde.	6067	1914	Stephen Winch	Paisley	S.	1919	1*
Military Crest	18126	4643	Clyde.	5063	1913	Stephen Winch	Paisley	S.	1919	1*
Lively	8669	5319	Per.	5960	1915	R. W. Garland	Pinkerton	S.	1920	1
Fascinator (imp.)	13912	1147	Clyde.	2087	1910	W. J. Wilson	Pinkerton	F.	1918	1
Sir Oliver	10804	2104	Clyde.	2782	1906	Charles Bolton	Port Elgin	S.	1915	1
Malitor (imp.)	3849	3711	Per.	4247	1912	John W. Hopper	Port Elgin (R.R. 2)	F.	1918	1*

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* Horse requires inspection; Owner should look up route of Inspectors and present stallion at his nearest Inspection point at time stated.

BRUCE COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Major Muir (imp.)	12559	2714	Clyde.	1363	1909	Alex. McCannell	Port Elgin	S. 1917	1
Symmetry	21492	5361	Clyde.	5966	1916	Duncan McRae	Port Elgin (R.R. 3)	S. 1919	1*
Slap Bang (imp.)	13935	351	Clyde.	333	1910	Malcolm Matheson	Ripley	F. 1918	1
Popinjay (imp.)	11984	575	Clyde.	218	1909	Robert McTavish & Wylie	Ripley (R.R. 1)	F. 1916	1
Drumburle Again	16395	4104	Clyde.	4078	1913	Morgan & Cuthbertson	Ripley (Box 92)	F. 1918	1*
Spruce Hill	14202	3854	Clyde.	4446	1912	James A. Harris	Ripley (R.R. 2)	S. 1919	1*
Captain Carruchan	20360	5347	Clyde.	5805	1917	Wm. J. Johnston	Ripley (R.R. 1)	F. 1918	1*
Lord Saxtony	2504	5043	St. Br.	5550	1907	W. W. Irwin	Ripley	S. 1918	1
Maple Crest Mine	11524	9	Clyde.	209	1910	Andrew Gammie	Tara	S. 1917	1
Pride of Arran	10212	11	Clyde.	208	1909	Andrew Gammie	Tara	S. 1917	1
Mograzia	155	2689	St. Br.	518	1903	James Herron	Tara (R.R. 5)	F. 1914	1
Royal Knight (imp.)	15294	3252	Clyde.	3530	1910	George Henderson	Tara (R.R. 5)	F. 1918	1
Baron's Luck (imp.)	5546	2711	Clyde.	3209	1904	George Henderson	Tara	F. 1918	A1
Baron Mark	20598	5255	Clyde.	5804	1916	John Keir	Teeswater	F. 1918	1*
Prince Mark (imp.)	13370	676	Clyde.	103	1909	William G. Moffat	Teeswater	F. 1916	1
King Darrel	12906	3797	Clyde.	4311	1911	Hugh McDougall	Tiverton (R.R. 1)	F. 1918	1
K. McGregor	2294	4872	St. Br.	5401	1912	Thomas G. Scott	Tiverton	F. 1918	1*
Pacific King	1738	5595	Fr. Can.	6257	1917	Henry Ernst	Walkerton	S. 1920	1
Pacific Canadian	1474	4711	Fr. Can.	5244	1913	Henry Ernst	Walkerton	F. 1918	1*
Lorraine (imp.)	4440	3702	Per.	4243	1911	A. G. Fortune	Walkerton	F. 1918	1
Lord Lowther (imp.)	8895	3328	Clyde.	3800	1900	Daniel McNicol	Walkerton	F. 1914	1
Cedric King (imp.)	16340	3873	Clyde.	2451	1913	Daniel McNicol	Walkerton	S. 1919	A1*
Heron (imp.)	1594	417	Per.	688	1907	John Spiers	Wiarton (R.R. 6)	F. 1914	1
Fairy King (imp.)	9300	1717	Clyde.	2516	1904	Malcolm N. Smith	Wiarton	F. 1914	1

CARLETON COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Baron Parkhead	16467	5072	Clyde.	5515	1914	John F. Herrick	Arnprior (R.R. 1)	F. 1919	1
Dunlevie	18331	5027	Clyde.	5567	1916	James Wilson	Billings B'ge (R.R. 2)	F. 1919	1
Gold Dust	21835	5689	Clyde.	6344	1916	Howard Kemp	Blackburn	S. 1920	1
Black Guard	16931	4902	Clyde.	5360	1914	C. Armstrong & Sons	Carp (R.R. 1)	S. 1920	1
Joncy (imp.)	3035	2786	Per.	611	1909	Andrew Armstrong	Carp (R.R. 1)	F. 1916	1
Solon (imp.)	15426	4537	Clyde.	4984	1910	E. H. Graham & Son	Carp	F. 1917	A1
Captain Larabie	1510	3636	St. Br.	3737	1904	W. J. Wilson	Carp (R.R. 1)	F. 1914	1
Lavis (imp.)	3897	2871	Per.	3298	1911	J. H. Skuce	Carsonby	F. 1919	A1
Baron Rowena 2nd	15255	4426	Clyde.	4748	1913	J. H. Kennedy & Son	Corkery	F. 1919	A1

Golden West	482	4889	Hack.	5445	1908	J. H. Kennedy & Son	Corkery	S. 1917	1
Silver Mark (imp.)	10230	5602	Clyde.	6244	1908	Adam Scharfe	Cummings Bridge	S. 1920	1
Sir William Torrance	15572	4138	Clyde.	4610	1913	Horace C. Pinhey	Dunrobin	F. 1918	1*
Garcin (imp.)	1562	3362	Per.	2245	1906	Wm. R. Young	Hazeldean	F. 1914	1
Roy Harbour	20456	5199	Clyde.	5673	1916	T. A. Hicks	Kinburn	F. 1919	1
Borden 2nd	13013	1879	Clyde.	2705	1911	John Bidgood	Kinburn	F. 1918	2
Bayard de Corroy (imp.)	721	3283	Bel. Dr.	1296	1897	Andrew Spratt	Leitrim	F. 1912	1
Blondin de Rouveroy (imp.)	660	3221	Bel. Dr.	3615	1910	Thomas Costello	Manotick	F. 1917	A1
Baron Flashknot	15530	4146	Clyde.	4186	1913	James MacKay	North Gower (R.R. 1)	F. 1918	1*
Hapathique (imp.)	1518	686	Per.	869	1907	G. E. Lewis	North Gower	F. 1917	A1
Benedictine (imp.)	14582	2858	Clyde.	3390	1911	Michael O'Brien	Osgoode Station	S. 1919	1
Tifty's Pride (imp.)	13820	3322	Clyde.	1159	1909	William K. Pyper	Osgoode Sta. (R.R. 1)	S. 1917	1
Anmer (imp.)	874	4680	Thor.	5100	1910	Dominion Government	Ottawa	S. 1918	A1
C. E. F. Baron Begg	20119	5641	Clyde.	6250	1917	Director, Exper. Farms	Ottawa	S. 1920	1
Sir Marque	1926	5606	St. Br.	6311	1906	Auguste D'Amour	Ottawa, Victoria Hotel	S. 1920	1
Kerensky	0149	5311	St. Br.	5801	1917	Albert D. Way	Ottawa	F. 1918	1*
Colonel Tipton	1314	3672	St. Br.	4146	1912	R. R. Foster	Ottawa, 99 Irving Ave.	S. 1919	1*
Prince Blue	1315	2932	St. Br.	3448	1912	Mrs. M. H. W. Cameron	Ottawa, 488 Lewis St.	F. 1919	A1
Spier Olcott	55	4682	St. Br.	2416	1910	F. A. Tracey	Ottawa, Hotel Cecil	S. 1919	1
The Gleaner	683	3806	St. Br.	4178	1908	Arthur Blackburn	Ottawa	F. 1916	1
Bagot	1343	5546	Fr. Can.	6220	1912	Arthur Blackburn	Ottawa	S. 1920	1
Hillsdale Performer	838	4813	Hack.	5330	1915	B. Rothwell	Ottawa (R.R. 1)	F. 1918	1*
Dunbar	18328	5029	Clyde.	5569	1916	B. Rothwell	Ottawa (R.R. 1)	F. 1919	1
March Past	19994	5240	Clyde.	5798	1917	B. Rothwell	Ottawa (R.R. 1)	F. 1918	A1*
Sir Eustace	19993	5241	Clyde.	5797	1917	B. Rothwell	Ottawa (R.R. 1)	F. 1918	1*
Jackson Elrig	21756	5491	Clyde.	6102	1914	Ernest Scott	Richmond (R.R. 2)	F. 1919	1
Lord Kintore (imp.)	8451	358	Clyde.	374	1906	Thomas Burke	South March	S. 1915	1
Duke of Kenmore	9638	413	Clyde.	672	1909	Howard H. McCoy	Stanley's Cors.	F. 1916	1
Baron Edward	21531	5407	Clyde.	6028	1912	Fred Spearman	Stittsville (R.R. 1)	S. 1919	1*
Laurentian Boy	2409	4900	St. Br.	5349	1914	H. V. Green	Stittsville	F. 1918	1*
Silver Band	13423	3750	Clyde.	4183	1911	Joseph Lewis	Stittsville	S. 1919	1
Lord Aberdeen (imp.)	8495	5372	Clyde.	5949	1906	Hartley McKay	Stittsville (R.R. 1)	S. 1919	1
On Guard's Baron	16861	4424	Clyde.	4843	1914	D. J. Kennedy	Vernon	F. 1919	2

DUFFERIN COUNTY.

Northern Light (imp.)	13909	803	Clyde.	1825	1909	William Thompson	Alliston (R.R. 1)	S. 1919	A1
Cower Chief (imp.)	13818	783	Clyde.	1141	1909	Geo. E. Wilson	Belwood	F. 1916	2
Gallant Hero	21745	5667	Clyde.	6210	1918	Lorenzo Crewson	Colbeck	F. 1919	1
Proton Fancy	18683	5170	Clyde.	5691	1916	Alfred Colley	Corbetton	S. 1920	1

*Horse requires inspection; Owner should look up route of Inspectors and present stallion at his nearest Inspection point at time stated.

DUFFERIN COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Montrave Max	12804	1723	Clyde.	2489	1910	John Donkin	Corbetton (R.R. 4)	S. 1917	1
Golden Victory	22427	5637	Clyde.	6211	1917	R. J. McCutcheon	Glen Cross	F. 1919	1
Prince Marion	15073	4374	Clyde.	4336	1911	Thos. McFadden	Glen Cross	F. 1919	2
Lothian McKay	17763	4764	Clyde.	5280	1914	Robert Holborn	Grand Valley	F. 1918	1*
Scottish Moncrieffe	14169	4506	Clyde.	4402	1912	M. C. Ward	Grand Valley	F. 1918	A1*
Montrave Wilton	18009	5162	Clyde.	5652	1914	Jas. & Thos. Greenwood	Grand Valley	F. 1919	1
Glengyle	20606	5512	Clyde.	6208	1917	Jas. H. D. Platt	Grand Valley	F. 1919	1
Glendale Count (imp.)	15193	3124	Clyde.	3666	1911	S. T. & J. H. Platt	Grand Valley	F. 1918	1
Dunmore Count	20692	5391	Clyde.	5813	1917	John S. Campbell	Grand Valley (R.R. 3)	F. 1918	1*
Barrie MacNab	19409	5246	Clyde.	5535	1916	Geo. Clayton & Son	Grand Valley	F. 1918	1*
Loyal Hero (imp.)	9715	770	Clyde.	1456	1907	Geo. Clayton & Son	Grand Valley	F. 1919	A1
Tom McNab (imp.)	9800	1067	Clyde.	442	1904	William Clayton	Grand Valley	F. 1919	A1
Baron McKinnon	21382	5511	Clyde.	6209	1917	Menary & Menary	Grand Valley	F. 1919	1
Frank Harmony	8069	3530	Clyde.	3937	1905	David A. Keast	Jessopville (R.R. 1)	S. 1918	1
Baron Northland	17848	4943	Clyde.	5253	1915	W. F. Cooney	Laurel	F. 1918	1*
Royal Wildfire (imp.)	526	1181	Hack.	1522	1903	Jas. E. Ferris	Mansfield (R.R. 3)	F. 1914	2
Prince of Cardow (imp.)	12030	379	Clyde.	540	1909	R. J. Ormsby	Mansfield	F. 1916	1
Baron Dufferin	18416	4783	Clyde.	5301	1914	J. B. Murdy	Melancthon	F. 1918	1*
Silver Birch (imp.)	8738	528	Clyde.	262	1905	Robert Brown	Melancthon (R.R. 1)	F. 1914	1
Flashwood Chief	18635	4753	Clyde.	5170	1914	Alexander Ward	Monticello	F. 1918	1*
Royal Dale (imp.)	14136	1470	Clyde.	2352	1910	John S. Graham	Orangeville	S. 1918	1
Scottish Gem (imp.)	12560	1630	Clyde.	2468	1909	John Suggutt	Orangeville	F. 1919	A1
Eden	381	5169	St. Br.	5683	1910	Peter Wilson	Orangeville (R.R. 1)	S. 1918	1
Sir Manuel (imp.)	13754	716	Clyde.	1250	1908	Peter Wilson & John Barclay	Orangeville	F. 1916	1
King Gartly	19184	4911	Clyde.	5448	1913	John Cannawin	Orangeville	F. 1918	1*
The Baronet	1026	3116	St. Br.	3596	1909	John Cannawin	Orangeville	F. 1916	1
Ingara	376	1642	St. Br.	2477	1909	W. H. Riddell	Orangeville	S. 1920	1
King Alfred	10873	396	Clyde.	1365	1910	George I. Nodwell	Orangeville (R.R. 2)	F. 1918	1
Todd Bell	1695	4011	St. Br.	4376	1912	T. C. Peavoy	Orangeville	F. 1918	2*
Dunure Hallmark (imp.)	15378	2914	Clyde.	3484	1911	James Duncan	Orton (R.R. 2)	F. 1918	1
Montrave Viceroy	12805	1487	Clyde.	533	1910	James R. Gibson	Orton	F. 1918	1
Canadian Boy	20910	5237	Clyde.	5812	1916	Nelson Teeter	Riverview (R.R. 1)	F. 1918	1*
Golden Boy	2683	5685	St. Br.	6346	1917	Geo. Fletcher	Rosemont	S. 1920	1
Silvermont	22561	5686	Clyde.	6345	1913	Geo. Fletcher	Rosemont	S. 1920	1
Jim Direct	1707	4148	St. Br.	4118	1912	Geo. Fletcher	Rosemont	F. 1918	1*
Royal Tower (imp.)	14499	2902	Clyde.	3454	1911	Geo. W. Hepton	Shelburne	F. 1918	1
Baron Again	12836	2508	Clyde.	3170	1911	William Ritchie	Shelburne	F. 1918	1
Harfang (Imp.)	3193	2065	Per.	2639	1907	James H. Bell	Shelburne (R.R. 1)	F. 1914	1

DUNDAS COUNTY.

Outlaw (imp.)	602	386	Hack.	794	1909	Henry Hanson	Brinston	F. 1916	1
A. Night Rider	1346	3788	St. Br.	4319	1907	T. J. Ellis	Chesterville	S. 1915	1
Laddie Guard	18625	5022	Clyde.	5514	1915	Alex. B. McConnell	Chesterville	F. 1918	1*
Scottish Ring (imp.)	13852	4625	Clyde.	5068	1910	Calvin M. Munro	Chesterville	F. 1917	1
Prince Russell	17208	4695	Clyde.	5230	1914	Charles Hanson	Dixon's Corners	F. 1918	1*
Prince Logan	7180	2167	Clyde.	2924	1905	D. C. Mulloy	Inkerman	S. 1915	1
Sir James P. Whitney	19173	4874	Clyde.	4209	1913	Ira Ennis	Inkerman	F. 1918	1*
Autumn Boy	8300	5289	Per.	5872	1910	John Wagner	Morewood	F. 1918	1
Herculoid	3108	3722	Per.	4222	1912	J. A. McLeod	Morewood	F. 1918	1*
Arley B.	9	5599	St. Br.	6300	1909	J. H. Scott	Morrisburg	S. 1920	1
French Sport	5760	5358	Per.	5903	1916	I. J. Pitt	Williamsburg (R.R. 3)	S. 1919	1*
Mainbow	2805	5303	St. Br.	5923	1916	Frank Parker	Winchester	S. 1919	1*
Quartermaster	5501	5227	Per.	5781	1916	Kenneth E. Hutt	Winchester	F. 1918	1*
Grenadier	3997	4922	Per.	5268	1913	Kenneth E. Hutt	Winchester	F. 1918	1*

DURHAM COUNTY.

Derwent Pride	15957	4457	Clyde.	4867	1913	F. H. Ward	Bethany	F. 1919	1
Royal Derwent	18677	4784	Clyde.	5303	1914	F. H. Ward	Bethany	F. 1918	1*
Montrave Imperialist (imp.)	12646	649	Clyde.	720	1908	R. M. Cale	Bowmanville (R.R. 5)	F. 1916	2
King's Lynn (imp.)	10743	2280	Clyde.	2220	1904	Chester Power	Bowmanville	F. 1914	1
Paramont Regent	1476	5316	Shire	5954	1910	D. P. Cowan	Bowmanville	S. 1919	1
Lewis MacInnes	4447	1959	Clyde.	2107	1903	Thos. Hyland	Burketon (R.R. 3)	S. 1913	1
King of Woodslee	17855	5086	Clyde.	5641	1915	Robert Langstaff	Campbellcroft	F. 1919	1
Thoor Patch	640	3940	St. Br.	4328	1911	S. J. McMillan	Campbellcroft	S. 1919	1
Baron Hood (imp.)	8489	45	Clyde.	112	1900	J. W. Lowes	Cavan	F. 1912	1
Pride of Balmyre (imp.)	9753	2484	Clyde.	3177	1906	Rupert Winslow	Cavan	S. 1915	1
Royal Ribbon (imp.)	13932	602	Clyde.	438	1910	Clydesdale Horse Breeders' Assn.	Darlington	S. 1919	2
Joe Gleam	16716	3729	Clyde.	4261	1912	A. W. Wilson	Franklin	F. 1918	A1
Terrington Denmark	774	3959	Hack.	4489	1912	A. W. Wilson	Franklin	F. 1918	1*
Imperata	8394	5314	Per.	5952	1912	W. T. Baker	Hampton	S. 1919	1*
Judge Parker	1	3453	St. Br.	2916	1902	David Graham	Hayden (R.R. 6)	S. 1920	1
Prince Palatine (imp.)	15907	3432	Clyde.	3887	1910	Grandy Brothers	Ida	F. 1919	A1
King's Champion (imp.)	13174	343	Clyde.	280	1903	J. F. Staples	Ida	F. 1918	A1
Chaigeley Admiration (imp.)	323	1051	Hack.	1063	1905	J. F. Staples	Ida	F. 1914	1
Golden Gleam (imp.)	8783	64	Clyde.	1065	1900	J. F. Staples	Ida	F. 1912	1
Flash Boy	19792	5699	Clyde.	6330	1917	Henry Anderson	Janetville	S. 1920	1

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DURHAM COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Anagram (imp.)	13825	2279	Clyde.	1143	1911	McIntyre Thornton	Janetville	F. 1918	1
Marquia Freeland	16402	4726	Clyde.	4240	1912	Hugh McGill	Janetville (R.R. 2)	F. 1918	1*
Isonzo (imp.)	1646	2797	Per.	964	1908	G. H. Luxon	Kendall	S. 1919	1
Dunure Baron (imp.)	6150	1262	Clyde.	2055	1903	Patterson Brothers	Millbrook	F. 1914	1
Merry Baron (imp.)	17284	4475	Clyde.	4969	1912	Patterson Brothers	Millbrook	F. 1919	A1
Alois	5277	1996	Gr. Ch.	2707	1907	J. D. Deyell & H. Nattross	Millbrook	F. 1914	1
Sir David Junior	14458	483	Clyde.	760	1909	John Hutchinson	Millbrook	F. 1919	1
Golden Taylor	18590	4793	Clyde.	5326	1915	Geo. H. Hooton	Mt. Pleasant (R.R. 1)	F 1918	A1*
Taylor's Pride	20998	5521	Clyde.	6193	1917	Geo. H. Hooton	Mt. Pleasant (R.R. 1)	F. 1919	1
Bobcaygeon Amherst	134	4781	Suff.	5276	1913	W. C. Henry	Orono	S. 1919	1*
Billy Bingen	2182	5276	St. Br.	5882	1916	Thomas Cowan	Orono	F. 1918	A1*
Lancier De Petit (imp.)	61	1641	Bel. Dr.	965	1905	G. M. Soper	Orono	F. 1914	1
Lewie MacGregor	6221	3512	Clyde.	3252	1906	W. J. Coulter	Pontypool	S. 1914	1
Proud Gambler	1715	3471	St. Br.	3888	1901	M. F. Chalk	Port Hope, Box 115	F. 1914	1

ELGIN COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Naval Hero	18085	4830	Clyde.	5269	1914	F. E. Sansburn	Aylmer	S. 1919	2*
Sidmont Sprague	1178	3579	St. Br.	476	1901	C. J. Weisbrod & Co.	Aylmer	F. 1912	1
Hofwart	2078	862	Gr. Ch.	473	1907	Frank A. Smith	Aylmer (R.R. 2)	F. 1917	A1
Tuttle Brook Prince	1366	5565	Shire	6245	1916	Edward Englehart	Campbellton (R.R. 1)	S. 1920	1
Elgin Pride	19919	5201	Clyde.	5709	1916	Duncan D. Black	Dutton	F. 1919	1
Blacon Yet	8004	2984	Clyde.	2063	1906	Miner Ronson	Dutton	S. 1915	1
Kuroki 2nd (imp.)	626	3640	Shire	3247	1902	John McVannel	Dutton	F. 1914	1
Mimulus (imp.)	10681	1279	Clyde.	2167	1907	W. A. Sloan	Fingal	F. 1914	1
Jubilant	6745	5390	Per.	5543	1916	W. A. Sloan	Fingal	F. 1919	2
Elect Winters	1001	1982	St. Br.	482	1907	W. A. Sloan	Fingal	S. 1915	1
Bonnie Prince Charlie	21409	5577	Clyde.	6129	1916	A. J. Cessford Lunn	Fingal	F. 1919	1
Kingling	6744	5129	Per.	5529	1915	Herbert L. Clark	Iona Station	F. 1919	1
Jasper of Walnut Grove (imp.)	573	95	Shire	698	1908	Andrew A. Miller	Middlemarch	F. 1916	1
Klaustral (imp.)	4469	3989	Per.	4080	1910	F. Dunsford	New Sarum	F. 1918	1
Laharpe (imp.)	4459	3892	Per.	4059	1911	James Brackenbury	Port Burwell (R.R. 1)	F. 1918	A1
Black Duke	11736	143	Clyde.	748	1907	Robert Liddle	Rodney	S. 1915	1
Butley Major (imp.)	32	1794	Suff.	2166	1908	Frank Leach	St. Thomas, Box 65	S. 1918	1
Tinto	4534	4808	Per.	5251	1914	James Parish	St. Thomas	F. 1918	1*
Tetinus (imp.)	2266	588	Per.	396	1908	Frank Comfort	Shedden	F. 1916	2
Prince William	8295	109	Clyde.	787	1906	Geo. W. Teall	Vienna	S. 1914	1

Gericault	3513	3187	Per. 3370	1912	Geo. B. O'Malley	Wallacetown	F. 1919	1
Tuttle Brook Lad	1234	5110	Shire 5644	1915	Albert Schleilauf	West Lorne (R.R. 1)	F. 1919	2
Baron Blend	11276	1596	Clyde. 1764	1909	W. Monteith	West Lorne	S. 1917	1

ESSEX COUNTY.

Mount Pleasant Jim	18425	5357	Clyde. 5877	1916	D. A. & A. A. Ouellette	Amherstburg	S. 1919	1*
Pink	9785	5705	Per. 6204	1918	W. J. Fox	Blytheswood	S. 1920	1
Isaac P.	1943	349	Per. 304	1909	W. J. Fox	Blytheswood	F. 1916	1
Keir Jimmie	12968	3086	Clyde. 3617	1911	David Coulter	Blytheswood	F. 1918	1
Captain Black	6564	5222	Per. 5803	1916	Moses Dupuis	Belle River	F. 1918	1*
Wildbrino Jr.	2135	2561	St. Br. 2025	1898	John Harriston	Comber	F. 1914	1
Major	2148	5505	Bel. Dr. ...6116	1914	Henry Tinkle	Essex	F. 1919	2
Keir's Royal Renown	16742	4350	Clyde. 4801	1913	W. G. Hensman	Essex	S. 1919	1*
Rodrique Jr.	4237	3624	Per. 3518	1908	C. E. Forman	Harrow	F. 1916	1
Mayor	4239	3625	Per. 3532	1910	C. E. Forman	Harrow	F. 1918	1
Kommandant (imp.)	9374	5567	Per. 6283	1910	C. R. Gardner	Harrow (R.R. 4)	S. 1920	2
Jupiter (imp.)	9375	5561	Per. 6238	1909	James Drummond	Harrow	S. 1920	1
Victor	9780	5573	Per. 6288	1918	E. J. Wigle	Kingsville	S. 1920	1
Duke	10028	5564	Per. 6266	1918	E. J. Wigle	Kingsville	S. 1920	1
Morerice	9324	5563	Per. 6267	1907	E. J. Wigle	Kingsville	S. 1920	1
Coveney Marmion (imp.)	329	430	Hack. 799	1903	Lambert P. Wigle	Kingsville	F. 1917	A1
Roliere	7374	5120	Per. 5657	1916	Lambert P. Wigle	Kingsville	F. 1919	A1
Bay Jocko	1373	2037	St. Br. 2803	1907	John Lampman	Kingsville	S. 1915	1
King Tullock	14038	5440	Clyde. 6061	1912	Lewis Wigle	Leamington	S. 1919	1*
Gallant Clyde	14771	3721	Clyde. 4109	1912	Thomas Phillips	Maidstone (R.R. 2)	F. 1918	1*
Celtic Park	15131	3663	Clyde. 4110	1912	Thos Barnes & Son	Maidstone (R.R. 2)	F. 1918	1*
Keir Democrat 2nd	14751	4523	Clyde. 4148	1912	James Charette	McGregor	F. 1918	1*
Sequin	9779	5631	Per. 6289	1918	Norman Atkin	North Malden	S. 1920	1
Hidalgo	7724	5562	Per. 6265	1917	Norman Atkin	North Malden	S. 1920	1
King Edward	10461	5672	Per. 6271	1914	Pelee Island Percheron Breeding Assn.	Pelee Island	S. 1920	A1
Earl Kitchener	1356	5463	Shire 6087	1917	G. Marintitte	Ruscomb (R.R. 1)	S. 1919	1*
Tullock Again	14284	4667	Clyde. . ..5094	1912	Adam Knister	Ruscomb	F. 1919	1
Maple Grove Fred	21552	4966	Clyde. 5457	1914	John Anderson	Staples (R.R. 2)	F. 1919	1
Jette	564	4002	Per. 66	1906	Jas. Daley	S. Woodslee (R.R. 3)	F. 1914	2
Correct	3609	2951	Per. 1890	1906	J. B. Lalonde	Stoney Point	F. 1914	1
Carnot de Gemel Jr.	968	4665	Bel. Dr. ..5093	1913	J. B. Lalonde	Stoney Point	F. 1919	1
Dolphie Brino	2292	4703	St, Br. 5158	1913	Alex. Trudell	Tilbury	F. 1918	1*

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FRONTENAC COUNTY

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.		Date of Insp.	Form of Cert.
Wildwing	760	1084	St. Br.	1506	1911	John Williams	Battersea	F.	1918	1
Normanby	8020	5584	Per.	6254	1917	Wm. G. Anglin	Brewer's Mills	S.	1920	1
Chief Autocrat	16470	4997	Clyde.	5059	1914	Jacob E. Shibley & Son	Harrowsmith	F.	1919	1
Victor Forbes	2544	2576	St. Br.	3199	1910	Thos. K. Nicholson	Kingston, 75 Main St.	F.	1918	1
Exaltim	758	3300	St. Br.	3787	1910	E. S. Steen	Kingston	F.	1918	1
King George	7353	5238	Per.	5834	1916	C. W. Langwith	Kingston, 252 Albert St.	F.	1918	1*
Farmer's Pride	3392	2777	Per.	3102	1906	John Alarie	Kingston, 79 Division St.	S.	1914	1
Penalty	1970	4299	St. Br.	4890	1911	W. C. Randall	Kingston	F.	1919	1
Colonel	3476	2763	Per.	2099	1907	Lewis Martin	Kingston	S.	1915	2
Judge Murphy	1029	2267	St. Br.	315	1908	Fred Whitney	Kingston	F.	1916	1
Kabot (Imp.)	3001	521	Per.	557	1910	The Storrington Stock Co.	Sunbury	F.	1918	1
Aberlady 2nd	11291	50	Clyde.	235	1910	Brown Brothers	Wolfe Island	F.	1918	1
Peter Hawkins	2947	5480	St. Br.	6084	1916	William Hawkins	Wolfe Island	S.	1919	1*
Amardale	1858	4569	St. Br.	5044	1913	Oliver Hawkins	Wolfe Island	F.	1919	1
Beauchemier	3844	4544	Per.	4943	1913	Geo. E. Keyes	Wolfe Island, Box 47	F.	1919	2
Faro De Cap Rouge	1768	5596	Fr. Can.	6173	1918	Geo. E. Keyes	Wolfe Island	F.	1919	1

GLENGARRY COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.		Date of Insp.	Form of Cert.
Del Monte Bond	736	1672	St. Br.	2479	1906	N. M. Bellamy	Alexandria, Box 212	F.	1914	1
Joigny (imp.)	2820	1619	Per.	1676	1909	N. Bellamy & Moses Proulx	Alexandria	F.	1916	1
Royal Howick	17867	5253	Clyde.	5859	1915	D. P. McMillan	Alexandria, No. 2	F.	1918	1*
Percheron (Imp.)	258	879	Per.	1675	1902	E. W. Munro	Apple Hill, No. 2	F.	1914	1
Landerneau (imp.)	3979	3095	Per.	3650	1911	Alex. McKay	Dalhousie Station	S.	1919	1
Peter Chicken	2275	4879	St. Br.	5296	1911	Ranger Brothers	Dalhousie Station	F.	1918	1
Aberdeen's Pride	13503	3005	Clyde.	3553	1911	Geo. N. Vogan	Dalkeith	F.	1918	1
Castle Baron (imp.)	6127	1315	Clyde	1911	1904	William D. MacLeod	Dunvegan, No. 1	F.	1914	1
Fyvie Prince (imp.)	6126	826	Clyde.	1910	1904	William D. MacLeod	Dunvegan, No. 1	F.	1914	1
Impeccable	2245	3950	Per.	1558	1908	W. S. Jamieson & D. McMillan	Glen Sandfield	F.	1919	A1
Vivacity (imp.)	4444	685	Clyde	1083	1902	A. J. R. McDonell	Greenfield	F.	1912	1
Goliath (imp.)	405	2794	Per.	270	1906	D. E. McMaster	Greenfield	F.	1914	1
Joffre of Maxwelton	5522	4932	Per.	5292	1915	J. A. MacLachlan	Green Valley	F.	1918	1*

Melton Street	207	5392	Thor.	5688	1908	Canadian National Bureau of Breeding John A. McArthur, Agent	Montreal Lancaster	S.	1919	1
Duke of Ormond	10575	2155	Clyde.	2877	1909	Ross Brothers	Martintown	F.	1916	1
Cock of the North	16592	4339	Clyde.	4745	1914	Hugh A. Robertson	Martintown	F.	1919	1
Smylett Performer (imp.)	164	145	Hack.	708	1900	J. J. Anderson & Jas. Stuart	Maxville	F.	1914	1
Mount Victoria Polonius	771	3197	Hack.	5664	1914	M. D. Campbell	McCrimmon	F.	1919	2
Rigilo	2670	471	Per.	1079	1909	W. J. Chisholm	Summerstown Station	F.	1916	1
Saline Boy	1220	3889	St. Br.	4307	1905	John Russell	Williamstown	S.	1915	1
Bold Archer	5477	1135	Clyde.	1004	1903	P. & D. McCrimmon	Williamstown	F.	1912	1
Prince Lothian	17057	5099	Clyde.	5616	1914	Oliver Major	Williamstown	F.	1919	2

GRENVILLE COUNTY.

Kirk Hero	20244	5195	Clyde.	5696	1913	Arthur Adams	Cardinal, No. 1	F.	1919	2
Gitchie Manato	920	2970	St. Br.	3404	1899	Geo. E. Lane	Cardinal	S.	1914	1
Charming Choice	18094	5477	Clyde.	6062	1915	Jos. Crites	Cardinal	S.	1919	1*
Hal Clause	017	545	St. Br.	655	1909	T. M. Griffin	Kemptville	F.	1916	1
King Philip	15839	4588	Clyde.	4998	1911	Raymond Brothers	Kemptville, No. 3	S.	1919	1
Prince Guard	16996	4977	Clyde.	5281	1914	Benjamin Henry	Kemptville	F.	1918	1*
Banner Boy	21570	5532	Clyde.	6174	1917	Benjamin Henry	Kemptville	F.	1919	1
Beryllian	2214	5212	St. Br.	5758	1915	H. J. Patterson	Kemptville	F	1919	1
Aeroplane	591	1137	Hack.	2000	1908	Arthur Burchill	Merrickville	S.	1917	1
Gasteropade (imp.)	1528	451	Per.	1182	1906	G. E. Bradley	Prescott	F.	1914	1
Megiddo	17386	5396	Clyde.	6019	1915	Horace Reed	Prescott, No. 3	S.	1919	1*
Cecil R.	874	740	St. Br.	1184	1899	J. A. Hyndman	Spencerville	F.	1912	1
Koyama 2nd	17561	5196	Clyde.	5697	1915	Ralph Cummings	Spencerville, No. 1	F.	1919	1

GREY COUNTY.

Dunure Star	18619	5549	Clyde.	5887	1916	Conrad Baker	Ayton	F.	1918	1*
Royal Henry 2nd	18166	5479	Clyde.	6075	1915	John C. Morrison	Bognor, No. 1	S.	1919	2*
Fortune Abbot	20667	5436	Clyde.	6070	1915	Arthur McKay	Cape Rich, No. 1	S.	1919	2*
Stalwart (imp.)	7813	384	Clyde.	901	1902	P. J. Ryan	Cedarville	F.	1912	1
Irmak (imp.)	1658	2386	Per.	2922	1908	John Brown	Clarksburg	S.	1917	1
Sandy Busk	19340	5295	Clyde.	5837	1916	George Duncan	Dundalk	F.	1918	1*
Cacus Star	1997	4562	St. Br.	5021	1907	Charles Palmer	Dundalk, Box 142	S.	1916	1
The Peer (imp.)	13845	1123	Clyde.	1243	1910	I. E. Haug	Durham, No. 2	F.	1918	1
Seneca (imp.)	13915	1477	Clyde.	2362	1910	J. J. Jandt	Elmwood, No. 4	S.	1919	1

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GREY COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.		Date of Insp.	Form of Cert.
Proud Sturdy	20759	5661	Clyde	6332	1917	J. A. Myles & Company	Epping, No. 4	S.	1920	1
High Standard	20348	5660	Clyde.	6331	1917	J. A. Myles & Company	Epping, No. 4	S.	1920	1
Chief Secretary	20347	5312	Clyde.	5839	1915	J. A. Myles & Company	Epping, No. 4	F.	1918	1*
Sir Byron	905	5313	Hack.	5840	1913	J. A. Myles & Company	Epping, No. 4	F.	1918	1*
Abbot Fashion	21402	5450	Clyde.	6073	1916	J. A. Myles	Epping	S.	1919	1*
Baron Grandee	18305	5291	Clyde.	5881	1916	Albert Dawn	Epping	F.	1918	1*
Grandee Pride	18306	5306	Clyde.	5946	1916	Albert Dawn	Epping	S.	1919	1*
Cairnbrogie Ronald	19571	5430	Clyde.	6020	1916	William Brewster	Feversham	S.	1919	1*
Diamond Scott	19710	5105	Clyde.	5581	1915	William Davidson, Jr.	Feversham	F.	1919	1
Kentucky Sam	856	736	St. Br.	1163	1905	Geo. H. Whiteoak	Feversham	F.	1914	1
Ronald of Tangy (imp.)	12238	2758	Clyde.	689	1907	Isaac Eby	Hanover	F.	1914	1
Dunure George (imp.)	6886	742	Clyde.	1554	1904	Henry Fritz	Hanover, No. 2	F.	1914	1
Lansdowne (imp.)	8450	580	Clyde.	247	1906	John W. Julian	Heathcote	F.	1914	2
Lockwood Chief	14437	3660	Clyde.	4049	1912	W. M. Groat	Holstein	F.	1918	1*
Copernicus	14054	3837	Clyde.	4277	1912	W. M. Groat	Holstein	F.	1918	1*
Albert of Elm Shade	22271	5668	Clyde.	6322	1917	Alexander Calder	Holstein	S.	1920	1
St. Ivel (imp.)	15227	3077	Clyde.	3616	1911	Alexander McDonald	Holstein, No. 2	F.	1918	1
Foremost (imp.)	13848	1120	Clyde.	1240	1910	Edward Hoy	Holstein	F.	1918	1
Jaures (imp.)	3072	1473	Per.	2356	1909	R. R. Kinnell	Hopeville	S.	1917	2
Baron, Archie (imp.)	12526	5429	Clyde.	5950	1906	R. R. Kinnell	Hopeville	S.	1919	A1
Fortune Teller (imp.)	8739	1662	Clyde.	2528	1899	R. R. Kinnell	Hopeville	F.	1914	1
Predominant (imp.)	12490	1663	Clyde.	2527	1909	R. R. Kinnell	Hopeville	F.	1916	1
Laddie Evergreen	17441	5127	Clyde.	5566	1915	William Dingwall	Hopeville	F.	1919	1
Mardi (Imp.)	4441	3712	Per.	4245	1912	James A. Crowston	Markdale	F.	1918	1*
Gallant Baron (imp.)	8003	1304	Clyde.	1948	1906	James A. Crowston	Markdale	F.	1914	1
Cupbearer	444	793	St. Br.	1777	1906	James A. Crowston	Markdale	F.	1917	A1
Sir Marquis	19339	5132	Clyde.	5541	1916	James A. Crowston	Markdale	F.	1919	1
Peter Burtwood	1737	4010	St. Br.	4157	1909	James B. Leggitt	Markdale	F.	1917	A1
Kirminnock Mac (Imp.)	12122	1933	Clyde.	657	1908	J. H. Lever	Markdale	F.	1916	1
Isomar (imp.)	14053	1612	Clyde.	2483	1910	J. S. Shepherdson	Markdale	F.	1917	A1
Regent Donald	20304	5179	Clyde.	5667	1915	J. S. Shepherdson	Markdale	F.	1919	A1
Dandy Lad	19760	5007	Clyde.	5547	1915	Robert Murray	Markdale	F.	1919	1
Horizon (imp.)	16341	3751	Clyde.	4279	1911	Wm. Foster	Markdale	F.	1919	A1
Count of Canada	21628	5533	Clyde.	6214	1918	Wm. Foster	Markdale	F.	1919	1
Barney Doyle	16809	4746	Clyde.	5175	1914	W. R. Burnett	Markdale	F	1918	1*
Bailie Boy	13766	612	Clyde.	633	1910	Angus McInnis	Markdale, No. 3	F.	1918	1
Banquet (imp.)	9644	1585	Clyde.	363	1905	James Harvey Parker	Meaford	F.	1914	1

Diamond	5380	3239	Per.	2651	1903	Abraham Smith	Meaford	S.	1915	1
Manor Prince	15805	2846	Clyde.	3351	1910	Noble N. Arthur	Meaford	S.	1918	1
Pride of All	6455	914	Clyde.	1577	1905	R. D. and V. G. Bowes	Meaford, No. 1	F.	1914	1
Black Peer (imp.)	13806	1822	Clyde.	942	1910	Bowes & Kerr	Meaford	S.	1919	1
Blyth Prince (imp.)	13758	691	Clyde.	1465	1910	William Aldcorn	Mt. Forest, No. 1	F.	1918	1
Pacific (imp.)	13173	565	Clyde.	277	1904	John Gilstorf	Mt. Forest	F.	1917	A1
Sir Harold (imp.)	11880	415	Clyde.	678	1907	Walter A. Reeves	Mt. Forest, No. 2	F.	1914	1
Sandie's Pride	21731	5632	Clyde.	6248	1917	Carl M. Cole	North Keppel, No. 1	S.	1920	1
Gipsy Jake	2642	4907	St. Br.	5174	1914	Jacob Hunt	North Keppel	F.	1918	1*
Macaroon's Prince	16505	5541	Clyde.	5842	1914	Jos. Croome	Owen Sound	S.	1920	1
Kings Seal 2nd	19896	5580	Clyde.	6240	1917	Thos. H. Cole	Owen Sound, No. 1	S.	1920	2
President Roosevelt (imp.)	7759	2716	Clyde.	82	1902	M. E. Bebee	Owen Sound	F.	1912	1
Teddy Roosevelt	18517	5433	Clyde.	5796	1916	Milton E. Bebee, 302 8th Street	Owen Sound	F.	1918	1*
Duncan	9429	5469	Per.	6042	1913	Christopher Brock, 377 2nd Ave. E.	Owen Sound	S.	1919	1*
Maidenhall (imp.)	8459	63	Clyde.	1089	1906	R. J. Norton	Owen Sound	F.	1914	1
Sir Crossley (imp.)	11785	816	Clyde.	1884	1907	R. J. Norton	Owen Sound	F.	1914	1
Crown Parole	1831	4322	St. Br.	4729	1904	W. J. Paterson	Owen Sound	S.	1916	1
Sir John A. 3rd	17393	5089	Clyde.	5173	1914	Charles Eager	Presqu' Isle	F.	1918	1*
Royal Luck (imp.)	15281	2929	Clyde.	3407	1911	Grey Clydesdale Association	Presqu' Isle	F.	1919	1
Nigout (imp.)	4442	4486	Per.	4962	1913	Frook & Stothart	Priceville	F.	1919	1
Lainshaw Castle (imp.)	13807	1083	Clyde.	1778	1909	Samuel Batchelor	Proton	F.	1916	1
Fortune Prince	14201	457	Clyde.	1138	1910	Robert Grummett	Proton	F.	1918	1
Lord Kelvin	5736	3731	Clyde.	1713	1905	Isaac Brown	Rocklyn	F.	1914	1
Marathon (imp.)	12610	2131	Clyde.	450	1907	James H. Lemon	Silcote	F.	1914	1
Baron Crossley	19886	5621	Clyde.	6215	1917	James H. Lemon	Silcote	F.	1919	1
Rayo	19136	4685	Clyde.	5109	1914	S. T. Wilton	Singhampton	F.	1918	1*
Barrie Boy	950	4045	St. Br.	197	1909	P. A. Harrison and J. A Dixon	Varney	S.	1917	1

HALDIMAND COUNTY

Squire Purnie	20414	5583	Clyde.	6292	1917	Robert E. Lee	Caledonia	S.	1920	1
Norwell Chieftain (imp.)	828	383	Shire.	798	1908	George Allen	Caledonia	F.	1916	1
Kinpurnie (imp.)	7817	495	Clyde.	1171	1905	Fred Moore	Caledonia	F.	1914	1
Peter Watts	2623	5075	St. Br.	5573	1911	I. J. Smelcer	Caledonia	S.	1918	1
King Medium	2636	5297	St. Br.	5523	1916	H. F. Middaugh & Son	Dunnville	F.	1919	1
Jabloir	4019	3678	Per.	3989	1909	Dunnville Percheron Horse Association	Dunnville	F.	1916	1

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HALDIMAND COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Norfolk King	9814	548	Clyde.	1585	1908	David Patton	Dunnville S.	1915	1
Kentucky Owyho	818	4078	St. Br.	576	1907	G. F. Windecker	Dunnville S.	1915	1
Dominion Chief	18482	5382	Clyde.	6022	1916	William Anger	Dunnville S.	1919	1*
Jarnac (imp.)	3053	3511	Pers.	2971	1909	Nicholas Bacher	Fisherville S.	1916	1
Lord Commodore	15475	4321	Clyde.	4764	1913	Murray Martin	Hagersville, No. 3 F.	1919	1
Opulence	8641	644	Clyde.	677	1902	Geo. Gilbertson	Hagersville F.	1912	1
Elsing Lambert Shales	708	4073	Hack.	4586	1912	William E. Winger	Hagersville, No. 1 F.	1918	1*
Petain	5063	5061	Per.	5525	1915	Albert Snell	Hagersville, No. 2 F.	1919	1
Wilfrid King	17025	4598	Clyde.	4905	1913	Anthony Harris	Hagersville F.	1919	2
Hiawatha Charming	20041	5317	Clyde.	5849	1917	Mrs. John Gilbertson	Hagersville F.	1918	1*
Johnnie Mac	6761	1950	Clyde.	1384	1906	Martin Anderson	Hagersville F.	1914	1
Argyle Duke	13620	277	Clyde.	979	1911	Henry Hammond	Hagersville F.	1918	1
K. L. W.	2922	5413	St. Br.	5524	1916	Wesley McDougall	Hagersville F.	1918	1*
Gayspark (imp.)	6989	645	Clyde.	680	1901	William Lofthouse	Jarvis, No. 3 F.	1912	1
Clarence	6899	5418	Per.	6005	1916	Percy Armstrong	Jarvis S.	1919	1*
King of Gretna (imp.)	12666	710	Clyde.	1223	1909	Montague, Nichol & Martin	Jarvis, No. 1 F.	1916	1
Galicer	4918	5018	Per.	5522	1915	George Rinker	Lowbanks F.	1919	1
Baron Leven (imp.)	6108	416	Clyde.	679	1902	Milo A. Wood	Nanticoke F.	1912	1
Maxwalton	6900	5439	Per.	6055	1917	Robert Stone	Nanticoke S.	1919	1*
Prickwillow Connaught (imp.)	747	4001	Hack.	4288	1899	Alfred Lamb	Selkirk F.	1914	1

HALTON COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Perfection	4960	5171	Per.	5694	1915	Chas. A. Newell	Campbellville S.	1920	1
Isly (imp.)	3066	1433	Per.	2098	1908	James Hume	Hornby F.	1917	A1
Cabot	6533	5378	Per.	6008	1917	William Gunby	Millgrove No. 1 S.	1919	1*
Dunnottar (imp.)	13906	2955	Clyde.	3403	1911	Telfer Brothers	Milton West S.	1918	A1
Waverley King	862	5655	Hack.	5772	1916	Joseph Telfer	Milton West F.	1918	1*
Knight of Barglass (imp.)	11887	75	Clyde.	972	1908	Joseph Telfer	Milton West F.	1916	1
Luth (imp.)	4470	3991	Per.	4086	1911	W. E. McCready	Milton West F.	1918	1
Lampiste (imp.)	3291	397	Per.	1366	1903	W. E. McCready	Milton West F.	1914	1
Sir Milton	14273	3502	Clyde.	3919	1910	Thomas McKenzie	Milton West No. 5 S.	1917	1
Bonnie Russell	18161	4739	Clyde.	5206	1913	Chas. W. Donoven	Moffatt F.	1918	1*
Stately City Boy	14477	1893	Clyde.	2640	1910	S. D. McClure	Norval No. 2 S.	1917	1
Oulton Lowe Model (imp.)	1212	4054	Shire.	4591	1906	G. E. Morden & Son	Oakville No. 2 S.	1915	1
Gibraltar	9597	5516	Per.	6137	1917	Bater Brothers	Oakville F.	1919	1

Republic	9588	5517	Per.	6223	1918	Bater Brothers	Oakville	F.	1919	2
Hearts of Oak	1065	5368	Thor.	5876	1910	Harry Giddings	Oakville	S.	1919	1
Main Chance	524	361	Thor.	406	1904	Jacob E. Lucas	Palermo	F.	1912	1

HASTINGS COUNTY.

Peter Range	2226	4735	St. Br.	5294	1913	C. F. Robinson	Belleville	F.	1918	A1*
Herman Wenger	2420	4984	St. Br.	5469	1910	George Powell	Belleville	S.	1917	2
Robert Patch	184	4270	St. Br.	2042	1904	W. J. Orr	Belleville	F.	1915	1
Billy Kay	0153	5042	St. Br.	5577	1913	A. C. Dafoe	Belleville	F.	1919	1
Sir Wilfred	6502	2226	Clyde.	2048	1896	S. S. McComb	Bellview	S.	1915	1
Golden Key (imp.)	9997	1570	Clyde.	390	1906	Philip Scrimshaw & Son	Bellview	F	1914	1
Silloth Again	12147	1991	Clyde.	79	1910	John McCauley Shaw	Bird's Creek	S.	1919	1
Major De La Ronde	4920	5630	Per.	6252	1915	Geo. F. Bartlett	Boulter	S	1920	1
Black Knight	5490	931	Clyde.	1379	1903	Alexander W. Moynes	Coe Hill	S	1916	1
Echo's Fancy	20950	5235	Clyde.	5862	1916	David Quinlin	Cooper	F	1918	1*
Judge Carman	1073	4197	St Br.	4691	1913	Robert G. White	Foxboro	F	1918	1*
Ridlon	782	524	St. Br.	51	1902	Ernest Cox	Frankford	F	1912	1
Alick	645	4323	St. Br.	4215	1912	J. U. Simmons	Frankford	S	1919	1
Direct Hal Jr.	0166	5261	St. Br.	5905	1904	John Baker & R. T. Dunlop	Frankford	S	1919	1
Baron Flush	9207	599	Clyde.	429	1906	T. Cunningham	Gooderham	F	1914	1
Scotland Clyde	16158	4690	Clyde.	5110	1914	J. E. Wellman	Gunter	F.	1918	1*
Pioneer Prince	8608	1605	Clyde.	169	1908	Samuel Ray	Ivanhoe	F.	1916	1
Moncreiffe Albion (imp.)	12800	1676	Clyde.	1219	1909	J. E. Harrison	Marlbank	S.	1917	1
Riverside Coin	5746	731	Clyde.	870	1907	Joseph Lloyd	Marlbank	S.	1915	1
Prince Pride	18658	5434	Clyde.	5971	1916	William McCoy	Marmora	S.	1919	1*
Winchester (imp.)	282	2607	Hack.	49	1901	Flynn & McCullough	Marmora	F.	1912	2
Craigie Baron	21869	5508	Clyde.	6104	1916	Lummess Brothers	Millbridge	F.	1919	1
Hiawatha Prince	21430	5679	Clyde.	6342	1918	George A. Weaver	Stirling	S.	1920	1
Julien (imp.)	4465	4170	Per.	4663	1909	W. Kingston, J. Belshaw and A. Tweedie	Stirling	F.	1916	1
Captain	10434	5665	Per.	6274	1916	James Lake	Stirling	S.	1920	1
George Rayner	026	3551	St. Br.	3835	1912	John Keegan	Stoco	F.	1918	1*
Jackson	4121	3268	Per.	3758	1909	Daniel Whalen	Stoco	S.	1917	1
Sheriff Todd	253	4267	St. Br.	2421	1909	Damen King	Trenton, Box 1014	F.	1916	1
Todd McGregor	1901	4683	St. Br.	5106	1909	J. E. Vassaw	Trenton	F.	1916	1
High Grove Joffre	7686	5628	Per.	6282	1917	A. H. Tufts	Tweed No. 1	S.	1920	2

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HURON COUNTY

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.		Date of Insp.	Form of Cert.
Junior (imp.)	3824	2847	Per.	3399	1909	Robert Penhale	Bayfield	F.	1919	A1
Francisco 2nd	8969	5330	Per.	5981	1913	Robert Penhale	Bayfield	S.	1919	1*
Lord Mansfield	21567	1734	Clyde.	2385	1904	James Evans	Beechwood	S.	1914	1
King Gartsherrie	10219	1680	Clyde.	2311	1909	H. F. Kirkby	Belgrave	F.	1916	1
Major Hal	063	2257	St. Br.	2853	1907	Con. Baker	Belmore	F.	1914	1
Augustus	1095	4905	Bel. Dr.	5447	1914	Michael Graf	Belmore	F.	1918	1*
Macburle	22558	5701	Clyde.	6348	1917	Wm. C. King	Bluevale	S.	1920	1
Mascot (imp.)	4598	1328	Clyde.	1850	1902	J. W. King	Bluevale	F.	1914	1
Elmer Dickson	2295	4881	St. Br.	5396	1909	Thos. J. Coulter	Blyth	F.	1919	A1
Honest John	12083	2	Clyde.	397	1910	Jos. and Wm. Gray	Blyth	S.	1920	A1
Blacon Cross (imp.)	9559	876	Clyde.	1655	1907	Stubb Brothers	Blyth	F.	1914	1
Pride of Glencairn	10377	2652	Clyde.	820	1908	J. E. Ellis	Blyth	F.	1919	A1
Involucre (imp.)	2145	354	Per.	350	1908	William Berry	Brucefield	S.	1917	1
Earl of Stanley	18390	5051	Clyde.	5621	1916	Robt. D. Murdock	Brucefield	F.	1919	1
Blacon's Son	20869	5272	Clyde.	5889	1916	Robt. D. Murdock	Brucefield	F.	1918	A1*
Wildbrino King	79	3918	St. Br.	4046	1903	Kenneth McLean	Brussels	F.	1914	1
Craigie Double	18458	5050	Clyde.	5620	1916	Robert Nichol	Brussels	S.	1920	1
John D.	6163	4767	Per.	5331	1908	Robert L. Taylor	Brussels No. 2	S.	1917	1
Shethin Stamp (imp.)	9998	1280	Clyde.	2155	1907	A. F. Embry & Son	Brussels No. 5	F.	1914	2
Cumberland Gem (imp.)	13978	1367	Clyde.	2329	1910	W. J. Medhurst	Brussels	F.	1918	1
Minor Eel	1744	4224	St. Br.	4520	1908	Ernest G. Plum	Brussels	S.	1915	1
Lothian Type (imp.)	8914	756	Clyde.	1364	1906	James Parr	Brussels	F.	1914	1
Nation's Stamp	17138	5068	Clyde.	5622	1915	Peter Routledge	Brussels	F.	1919	2
Prince Macellus	19614	5427	Clyde.	5993	1916	W. T. Colwill	Centralia	S.	1919	2*
Prince of Carrick (imp.)	17249	4756	Clyde.	5133	1915	W. T. Colwill	Centralia	S.	1919	1*
Pathfinder (imp.)	15330	3880	Clyde.	1035	1912	W. T. Colwill	Centralia	S.	1919	2
Commodore Again	21790	5524	Clyde.	6236	1918	Ezra M. Durst	Clinton	S.	1920	1
Commodore Prince	22591	5709	Clyde.	6357	1918	John C. Durst	Clinton	F.	1920	1
Balmerino (imp.)	11579	3459	Clyde.	3903	1907	William Fear	Clinton, Box 213	F.	1914	1
Ictere (imp.)	1610	776	Per.	1512	1908	William Brown	Clinton	F.	1916	1
Prince Paramount	20410	5341	Clyde.	5973	1917	Henry Snyder	Clinton No. 2	S.	1919	1*
Peter Moko	3015	5651	St. Br.	6157	1918	Thomas Yearly	Crediton	F.	1919	1
Hall Caine (imp.)	13933	2087	Clyde.	2813	1909	Eli King	Crediton	F.	1916	1
Charming Prince (imp.)	11477	1601	Clyde.	2577	1909	James Cockwill	Crediton	S.	1916	2
Humide (imp.)	1480	376	Per.	524	1907	William Witzel	Dashwood No. 3	F.	1914	1
Rex Downing	1642	3855	St. Br.	4447	1909	William Sweitzer	Dashwood No. 2	F.	1916	1
Lord Rennie (imp.)	8915	1453	Clyde.	2210	1996	Reid Edighoffer & Son	Dashwood	F.	1914	1

Gladstone	5480	4757	Per.	5157	1914	George Irwin	Dungannon	F.	1918	1*
Winsome King	11478	3327	Clyde.	114	1908	Robert Dockett	Ethel	F.	1916	1
John Smollett	1419	3263	St. Br.	2814	1905	H. H. Brown	Exeter No. 3	F.	1914	1
The Salvage	2838	5348	St. Br.	5920	1916	James Essery	Exeter	S.	1919	A1*
Red Heir	956	2593	St. Br.	1131	1906	William Mitchell	Exeter	S.	1915	1
George Rex	20338	5594	Clyde.	6074	1917	Sheldon Bricker	Fordwich No. 1	S.	1920	1
Acton Stamp	19858	5052	Clyde.	5559	1915	Richard Porter	Goderich No. 2	F.	1919	1
Hygrade	2386	3595	St. Br.	2993	1907	William H. Brinley	Goderich, Box 638	F.	1914	2
Sir Randolph (imp.)	9547	473	Clyde.	1084	1902	George J. Ferguson	Goderich No. 5	F.	1917	A1
Kozan (imp.)	3855	2870	Per.	3385	1910	Robert Stevenson	Gorrie	F.	1917	1
Dandaleith Diamond (imp.)	22252	5607	Clyde.	6241	1914	John J. Miller	Hay	S.	1920	A1
Golden Ball (imp.)	13286	1113	Clyde.	1211	1908	John J. Miller	Hay	F.	1916	1
Attractive Prince (imp.)	16471	3922	Clyde.	4359	1901	W. J. Cooper	Henfryn	S.	1915	1
Cumberland Steel	22070	5608	Clyde.	6247	1913	Thos. J. Berry	Hensall	S.	1920	A1
Jabot (imp.)	3139	1369	Per.	2332	1909	T. J. Berry	Hensall	F.	1919	A1
Commodore (imp.)	9596	1681	Clyde.	2284	1907	T. J. Berry	Hensall	F.	1919	A1
King Thomas (imp.)	9254	1366	Clyde.	2330	1902	T. J. Berry	Hensall	F.	1919	A1
Colonel Graham (imp.)	9235	1370	Clyde.	2331	1902	T. J. Berry	Hensall	F.	1919	1
Just in Time	21439	5612	Clyde.	6306	1916	John Caldwell	Hensall No 1	S.	1920	1
Silver McKinney	1860	3597	St. Br.	3965	1907	Thos. Murdock	Hensall	F.	1914	2
Commodore's Best	20379	5613	Clyde.	6312	1917	James Smillie	Hensall	S.	1920	1
Magnum	9393	5610	Per.	6279	1918	H. C. Soldan	Hensall	S.	1920	1
Budweiser	9070	5414	Per.	5911	1915	H. C. Soldan	Hensall	S.	1919	1*
Intime (imp.)	6219	5460	Per.	6011	1908	H. C. Soldan	Hensall	F.	1919	A1
General Bruce	11278	402	Clyde.	595	1910	H. C. Soldan	Hensall	F.	1918	1
King John (imp. in dam)	17226	4363	Clyde.	4887	1913	W. H. Kay	Kirkton	F.	1919	1
Baron Randolph	20184	5163	Clyde.	5658	1915	Thos. A. Powell	Kirkton No. 1	F.	1919	1
Cumberland Pride	21486	5523	Clyde.	6207	1917	Wesely Vodden	Londesboro No. 1	F.	1919	1
Sir Hector of Westfield (imp.)	14060	533	Clyde.	948	1907	Thomas Inglis	Lucknow No. 1	F.	1914	1
Avondale	787	4944	Hack.	5278	1914	Richard Twamley	Lucknow No. 7	F.	1918	1*
Happy Jack	16508	4716	Clyde.	5134	1914	George Swan	Lucknow No. 3	F.	1918	1*
King Kay	13029	529	Clyde.	400	1909	John Campbell & Wm. Cudmore	Seaforth No. 1	F.	1916	1
General Miller	21163	5633	Clyde.	6130	1918	Thos. McMichael & Son	Seaforth	F.	1919	1
Rantin Robin	21685	5597	Clyde.	6206	1917	Archie Kerr	Seaforth	F.	1919	1
Emperor McKinney	1653	4075	St. Br.	4341	1909	Chas. Riley	Seaforth No. 4	F.	1916	1
Golden Guinea	20738	5275	Clyde.	5777	1917	G. W. Nott	Seaforth	F.	1918	1*
Dunure Gartly	9221	97	Clyde.	704	1908	G. W. Nott	Seaforth No. 3	S.	1917	1
Todd Winters	2337	4785	St. Br.	5304	1914	Robert M. Pinkney	Seaforth	F.	1918	1*
Dextro	7819	5185	Per.	5734	1914	J. P. Fisher	Seaforth	F.	1919	1
Glen Rae	8353	1311	Clyde.	1935	1907	Thos. McMichael & Son	Seaforth	F.	1914	1
Royal of Dunholmhill	18787	5048	Clyde.	5610	1916	Thos. McMichael & Son	Seaforth	F.	1919	A1

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HURON COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Colonel Bowers	19005	4522	Clyde.	5025	1913	Thos. McMichael & Son	Seaforth	F. 1919	A1
Marshall Guedo	8091	5464	Per.	5854	1917	Joseph Brewster	Seaforth	S. 1919	1
Drumburle Favourite	21138	5380	Clyde.	6033	1917	Isaac Wright	Wingham	S. 1919	1
Castelar	225	2824	Per.	3354	1905	J. & S. Frieburger	Wingham	F. 1914	1
Sultan	2456	5620	Bel. Dr.	6260	1915	George Coward	Woodham No. 1	S. 1920	1
King Gartly	9503	2664	Clyde.	3161	1908	J. E. Creery	Woodham No. 1	F. 1916	2
Markdale	20401	5592	Clyde.	6239	1917	James McLeod	Wroxeter No. 2	S. 1920	1
Scotch Bobbie	15754	3898	Clyde.	4389	1912	Geo. W. Gibson	Wroxeter No. 2	F. 1918	1*
King's Own 4th	18570	5462	Clyde.	6080	1916	Wm. McAllister & Sons	Zurich No. 1	S. 1919	1*
The Essence	2404	5615	St. Br.	6269	1916	Jacob Baker	Zurich	S. 1920	1
The Great War McKinney	2889	5175	St. Br.	5650	1915	E. Bossenberry & J. N. Cantin	Zurich Box 293	F. 1919	2
Ledoro	2196	2702	St. Br.	3064	1909	John Baker	Zurich No 1	F. 1916	1

KENT COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Regal Chattan	9642	41	Clyde.	41	1909	Elam Hind	Bear Line	S. 1917	1
Courbide	775	4604	Per.	4035	1906	Levi Tetreault	Bear Line	F. 1914	1
Earl Fife (imp.)	11581	1250	Clyde.	2030	1908	David McLeod	Blenheim	F. 1916	1
Prodigo	1877	4481	St. Br.	4942	1913	Freeman Truax	Blenheim	S. 1919	1*
Carnot De Gemel (imp.)	164	909	Bel. Dr.	1290	1905	John Marshall	Blenheim	F. 1914	1
Fendlair (imp.)	745	3397	Per.	3156	1904	Rufus Earl	Blenheim	F. 1914	1
Gearing Boy	1363	3316	St. Br.	3514	1910	Sparham Brothers	Blenheim	F. 1918	1
Hartland's Favourite	5727	3023	Clyde.	27	1905	A. H. Patterson	Bothwell	F. 1914	1
Aikman	21291	5447	Clyde.	6055	1916	Fred Sullivan	Bothwell No. 5	S. 1919	1*
Lambton King	19476	5426	Clyde.	6060	1916	Harvey McAlpine	Bothwell No. 2	S. 1919	1*
Amiral (imp.)	3611	1757	Per.	28	1903	Adam Johnston	Bothwell	F. 1912	1
Maplehurst Forest King	677	4446	Shire.	4934	1909	Peter Reynolds	Bothwell No. 1	S. 1916	1
Lowe Model	1510	5486	Shire.	6088	1917	Dell Drury	Charing Cross	S. 1919	1*
King of Riverside	21171	5408	Clyde.	6016	1917	Arthur Gordon	Chatham	S. 1919	1*
Harrison (imp.)	1391	1483	Per.	2445	1907	Dan Donovan	Chatham	F. 1914	1
College King	028	2832	St. Br.	3311	1899	D. McLachlan	Chatham	F. 1914	1
Alto Dewey	935	2724	St. Br.	3193	1907	D. McLachlan	Chatham	F. 1914	2
Ixode (imp.)	3141	1371	Per.	2333	1908	James Downie	Chatham No. 3	S. 1917	1
Duke of Carruchan	16429	4771	Clyde.	5366	1914	James Gordon	Chatham	S. 1919	1*
Grand Allerton	716	32	St. Br.	6	1905	John Hales, 118 Selkirk St.	Chatham	F. 1914	1

Dashing King (imp.)	6099	1464	Clyde.	2139	1904	Joseph Elgie, 43 Cornhill St.	Chatham	F.	1914	1
The Great Widower	1681	4406	St. Br.	4932	1913	Mack Howard, 42 Edgar St.	Chatham	S.	1920	1
Normand	3510	4289	Per.	4040	1912	McGarvin Brothers	Chatham No. 3	F.	1918	1*
Reuben	9191	5519	Per.	6057	1917	R. R. Huff	Chatham	S.	1919	2*
Black Porte	1896	3103	Per.	2156	1909	James R. Cook	Coatsworth	F.	1916	1
Acme Gartly	22088	5683	Clyde.	6158	1916	Angus A. McAlpine	Croton No. 2	F.	1919	1
Bluster Crown	1279	5554	Shire.	6138	1916	Johnston Brothers	Croton	F.	1919	1
King Junior (imp.)	1068	2857	Shire.	2642	1908	Johnston Brothers	Croton	F.	1919	A1
Prince Charles of Lambton	1220	4738	Shire.	5156	1914	Johnston Brothers	Croton	F.	1918	1*
Libidineux (imp.)	3854	2872	Per.	3383	1911	Reuben Brend	Eberts No. 1	S.	1918	1
Pearl Prince (imp.)	19657	5033	Clyde.	5583	1912	W. H. Mancell	Fletcher	F.	1918	A1*
Marchfield Baron (imp.)	8432	868	Clyde.	1637	1904	W. H. Mancell	Fletcher	F.	1914	1
Archer	3300	1318	Per.	1894	1910	David L. Gardner	Merlin	S.	1920	1
Toupet Junior	7659	5555	Per.	6152	1917	J. L. B. Gardiner	Merlin	F.	1919	1
Baron Hillbrae 2nd	11033	1153	Clyde.	358	1910	David Hall	Merlin	S.	1918	1
Jouy (imp.)	3821	3104	Per.	3420	1909	Ferguson Brothers	Muirkirk	F.	1916	1
Kaboulot (imp.)	3079	1285	Per.	2001	1910	J. G. Pinder	Mull	F.	1917	1
Mark B.	8970	5331	Per.	5982	1915	Matthew E. Miller	Northwood	S.	1919	1*
Joseph	3561	1905	Per.	2431	1910	Napoleon Caron	Paincourt	S.	1919	1
Sunbeam Junior	15159	2831	Clyde.	3323	1911	Alvin Murray	Ridgetown No. 1	F.	1919	1
Goldring, Jr.	6744	310	Morg.	38	1898	John Mowbray	Thamesville	F.	1912	1
Lloyd George	823	626	St. Br.	1	1908	R. C. Coates	Thamesville	F.	1916	1
Kerjolla	1341	3075	St. Br.	3540	1911	Cryderman & Ferguson	Thamesville	F.	1918	1
Baron of Fife (imp.)	18111	5200	Clyde.	5692	1915	Thomas Wooton	Thamesville No. 3	F.	1919	1
Voltaire	8302	5290	Per.	5873	1914	Geo. Cottingham	Tilbury	F.	1918	A1*
Jours (imp.)	4013	4499	Per.	4431	1909	Richard Rosebrugh	Turnerville	F.	1916	1
Colonel Roachdale	2147	5497	Bel. Dr.	6105	1917	Bogaert Brothers	Wallaceburg	F	1919	1
Baron O'Brogie	13985	549	Clyde.	1599	1910	Charles Harrett	Wallaceburg	S.	1917	1
Joe Marathon	20069	5649	Clyde.	6200	1917	J. A. Campbell and Jno. Whitemarsh	Wallaceburg	F.	1919	A1
Roubaix	4108	4315	Per.	4911	1913	J. G. Renwick & Sons	Wheatley No. 1	F.	1919	1
Kodi (imp.)	4462	3941	Per.	4170	1910	John Buckingham	Wallaceburg	F.	1918	A1
Tango	8967	5326	Per.	5977	1914	John LaPriese	Wallaceburg	S.	1919	1*

LAMBTON COUNTY

Lord of Fife	14843	1479	Clyde.	2375	1909	Campbell Brothers	Alvinston No. 7	F.	1916	1
Airdlie Dix (imp.)	12611	1798	Clyde.	2204	1909	Campbell Brothers	Alvinston No. 7	F.	1916	1
Lothian's Brand (imp.)	10083	1693	Clyde.	1886	1903	Gordon White	Alvinston No. 1	F.	1914	1
Berlu	7485	5431	Per.	6037	1917	H. A. Gilroy	Alvinston	S.	1919	1*

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LAMBTON COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Oro Gilroy	1637	3735	St. Br.	4095	1911	H. A. Gilroy	Alvinston	S. 1918	1
Laddie Cairnton	18848	5350	Clyde.	5962	1916	James Hand	Alvinston	S. 1919	1*
Alvinston	1953	4556	St. Br.	5043	1914	W. A McLean	Alvinston	S. 1919	1*
Dunure David (imp.)	13674	1256	Clyde.	2018	1910	Wm. D. Benstead	Alvinston	F. 1918	A1
Lauriston Pride (imp.)	11801	1393	Clyde.	2301	1905	W. D. Benstead	Alvinston	S. 1913	1
High Ross	897	1341	St. Br.	1374	1903	J. B. McColl	Arkona	S. 1914	1
St. Clair	21467	5619	Clyde.	6160	1917	Henry L. Barne	Bickford	S. 1920	2
King Easy (imp.)	7853	728	Clyde.	1024	1906	Ben Horspool	Brigden	F. 1914	1
Prince of Lambton	17246	5064	Clyde.	5544	1914	Byron Stephens	Brigden No. 1	F. 1919	1
Gulf Stream Heir	19144	5065	Clyde.	5561	1916	John F. Burr	Brigden	F. 1919	1
Parkside Major	877	437	Shire.	842	1909	John F. Burr	Brigden	F. 1916	1
Canadian Prince	10763	2972	Clyde.	1021	1908	Frank Holling	Camlachie	F. 1916	1
Sir Baron Triumph	22016	5676	Clyde.	6216	1917	Angus McKinley	Camlachie	S. 1920	1
Stirling Prince	21591	5654	Clyde.	6053	1916	Fred Symington	Camlachie	S. 1919	1*
Baron Shamrock	20503	5299	Clyde.	5922	1915	James Montgomery	Camlachie	S. 1919	1*
Robin Adair	19883	5461	Clyde.	6059	1917	W. J. Sinclair	Croton	S. 1919	1*
Go. Go. (imp.)	1581	403	Per.	596	1906	Garnet J. Delve	Dresden No. 2	F. 1914	1
Sagamore's Heir	21440	5381	Clyde.	6015	1916	John Dalton	Edy's Mills	S. 1919	1*
King's Mint (imp.)	13176	1165	Clyde.	1482	1907	Henry Mawlam	Florence No. 3	F. 1914	1
Sir Baron Mac	19898	5435	Clyde.	6054	1916	Arthur Watson & Sons	Forest	S. 1919	1*
Earl O'Clay	12035	699	Clyde.	953	1905	Brandon Brothers	Forest	F. 1919	A1
Ken Favourite (imp.)	16472	3916	Clyde.	4361	1911	Brandon Brothers	Forest	S. 1920	A1
Carbrook Buchlyvie (imp.)	22039	5644	Clyde.	6243	1912	Brandon Brothers	Forest	S. 1920	A1
Aurelian (imp.)	18325	4696	Clyde.	5130	1912	Brandon Brothers	Forest	F. 1919	A1
Fyvie Bonus (imp.)	22265	5645	Clyde.	6242	1908	Brandon Brothers	Forest	S. 1920	A1
Eastfield Charles	19762	5079	Clyde.	5629	1915	Brandon Brothers	Forest	F. 1919	A1
King Simon	20901	5600	Clyde.	6148	1917	Brandon Brothers	Forest	F. 1919	A1
Herminius Again	21292	5601	Clyde.	6149	1917	Brandon Brothers	Forest	F. 1919	1
Hedley's Choice	13052	3947	Clyde.	4315	1911	Brandon Brothers	Forest	F. 1918	1
Baron Currie (imp.)	7734	608	Clyde.	715	1902	Brandon Bros. & Kingston	Forest	F. 1912	1
Voltaire	8971	5329	Per.	5980	1916	Fraleigh & Shannon	Forest	S. 1919	1*
Gay Pride	17446	4867	Clyde.	5318	1915	William Gilliard	Forest No. 1	F. 1918	1*
Logan, Jr.	7818	5231	Per.	5821	1916	W. L. Fraser	Forest	F. 1918	1*
Gros-Bec (imp.)	1554	2739	Per.	346	1906	G. McLaughlin & C. McKeigan	Inwood	F. 1914	A1
Lord Oswald (imp.)	8671	54	Clyde.	327	1907	James T. Smillie	Inwood	F. 1914	1

Drefus	3282	498	Per.	1409	1898	Wm. Dean & Archie B. McLaughlin	Inwood	F. 1914	1
Pride of Warwick	12119	829	Clyde.	1921	1910	Bert Cruickshank	Mooretown	F. 1918	1
General Joffre	20453	5119	Clyde.	5651	1916	Albert Bass	Oil City No. 3	F. 1919	A1
Bute Darnley (imp.)	10348	1434	Clyde.	2104	1908	Trott Brothers	Oil City	F. 1916	1
Branton Junior	20625	5254	Clyde.	5351	1914	W. J. Trott	Oil City	F. 1918	1*
Bailey	1217	4857	Shire.	5311	1914	Thomas Bailey	Oil Springs No. 3	F. 1918	1*
Prince Ronald (imp.)	5367	2072	Clyde.	2728	1903	Thomas Naylor	Oil Springs	F. 1914	2
Bombie's Footprint	14247	2882	Clyde.	3457	1912	William R. Bridges	Oil Springs	S. 1919	1
Porta	1887	4548	St. Br.	4927	1913	Thos. H. Eady	Petrolia	F. 1919	1
Jack Wilson	2016	1042	St. Br.	1020	1908	J. W. Kerr	Petrolia	F. 1916	1
Sagamore	14983	3319	Clyde.	3774	1910	Maw & Marshall	Petrolia	F. 1918	1
Hercules 2nd	1921	5335	Bel. Dr.	5986	1915	Robert Kettle	Petrolia	S. 1919	1*
Bob L.	8966	5325	Per.	5976	1914	Robert Kettle	Petrolia	S. 1919	1*
Tanton	1206	2959	St. Br.	3507	1911	Walter Fisher	Petrolia No. 2	S. 1919	1
Earl Pride	21424	5375	Clyde.	5992	1916	Wilbert Napper	Petrolia No. 2	S. 1919	1*
Darrien	377	3976	St. Br.	4055	1908	Bert Price	Sarnia	F. 1916	1
Lord Powis 2nd	14722	3762	Clyde.	4089	1912	Frederick Hooper	Sarnia No. 1	S. 1919	2
Togo B.	872	566	St. Br.	356	1906	Dan McKellar	Sarnia	S. 1915	1
Peter G.	661	2804	St. Br.	3329	1911	E. F. Goodison	Sarnia	S. 1920	1
Hillhead King (imp.)	15478	2957	Clyde.	3488	1911	Geo. S. Silk, 328 Christena St	Sarnia	F. 1918	1
Kanrobert (imp.)	9427	5452	Per.	6066	1910	James Brothers	Sarnia No. 3	S. 1919	1
Alvada	9325	5442	Per.	5997	1916	Neil Maitland	Sarnia No. 2	S. 1919	1*
Wilson Axworthy	2579	5550	St. Br.	6156	1915	W. H. Haney	Sarnia	F. 1919	1
Brown Gem	805	1070	St. Br.	355	1905	William Barnes	Sarnia	F. 1914	1
Junero	10400	5670	Per.	6318	1916	H. C. Strangway	Sarnia (R.R. 2)	S. 1920	1
Rattler, Jr.	7817	5389	Per.	5912	1916	John E. Dupuis	Sombra	S. 1919	1*
Chattan's Buchlyvie	14350	3826	Clyde.	4129	1912	Henry Curts	Thedford No. 3	F. 1918	1*
Urbain (imp.)	1591	3542	Per.	2534	1905	David Skillen	Watford	S. 1914	1
McKinney Coast	1011	2143	St. Br.	2525	1904	Henry Zavitz	Watford	S. 1915	1
Jurot (imp.)	8949	5432	Per.	6051	1909	Robert Campbell	Watford No. 2	S. 1919	1
Baron's Jim	8488	66	Clyde.	1010	1906	William P. Reid	Watford No. 7	F. 1914	1
Prince Albert	1198	4382	Shire.	4792	1913	F. Pretty	Wilkesport	F. 1919	1
Radlguil, Jr.	4354	3363	Per.	3796	1907	Hugh Montgomery	Wyoming	F. 1914	1

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LANARK COUNTY

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Baron Gibson	14478	3247	Clyde.	673	1910	Wm. J. Graham	Almonte	F. 1918	1
Gartly Pride 2nd	16181	4173	Clyde.	4654	1911	W. R. More	Almonte No. 2	F. 1918	A1
Lord Kitchener	20865	5229	Clyde.	5860	1916	G. and W. Patterson	Almonte No. 1	F. 1918	1*
Elrig of Kenmore	17429	4895	Clyde.	5271	1915	John Stewart	Appleton	F. 1918	1*
Judge Red	411	2756	St. Br.	658	1900	James Brazier, Box 491	Carleton Place	F. 1912	1
Baron McGregor	20296	5221	Clyde.	5863	1916	Robert Hilliard	Carleton Place	F. 1918	1*
Cashel Lad	12775	1934	Clyde.	2412	1911	W. A. Nichols	Carleton Place	F. 1918	A1
Taft	9071	5415	Per	5913	1912	William Kidd	Franktown	F. 1919	A1
Pride of Dunmore	8014	5417	Per	5990	1917	John A. McDougall	Hopetown	S. 1919	1*
Baron's Heir	12148	1992	Clyde.	78	1910	William Noack	Killaloe Station	S. 1917	1
Symmetry's Hero	21629	5593	Clyde.	6309	1912	James Legary	Lanark	S. 1920	1
Pioneer	7929	407	Clyde.	643	1906	Thos. A. Conroy	Lanark No. 3	F. 1914	1
Belmont	9811	823	Clyde.	1906	1908	Pierce Murphy	Merrickville	F. 1916	1
Mono Prince	601	4981	St. Br.	5443	1911	Joe Bennett, Market St.	Perth	F. 1918	2
Anthony Waterer	376	684	Shire.	1705	1902	Alfred Cavanagh	Perth	F. 1914	1
Tom Millerton	721	4052	St. Br.	4517	1907	T. J. Devlin	Perth	S. 1915	1
Concord Mac	10413	4545	Clyde.	5019	1907	T. J. Devlin	Perth	S. 1916	1
King of Quality	6086	5097	Clyde.	5632	1904	John A. Ebbs	Perth No. 1	S. 1918	1
Hoqueton (imp.)	1558	543	Per.	376	1907	Thos. H. Ireton	Perth No. 2	F. 1914	1
Rudgate Squire (imp.)	1052	2108	Shire.	277	1910	John Johnston	Perth No. 4	F. 1918	1
Monomaniac	242	347	St. Br.	662	1902	John A. Kerr	Perth	F. 1912	1
Syndic Chief	14099	1316	Clyde.	1902	1909	Peter King	Perth No. 5	S. 1919	1
Patron (imp.)	595	1130	Bel. Dr.	2161	1910	James L. P. McLaren	Perth	F. 1918	1
Baron Killarney	13366	3738	Clyde.	3719	1911	William McLaren	Perth	F. 1918	1
Kosaque (imp.)	3255	1380	Per.	2346	1910	M. McMullen	Perth No. 1	F. 1918	2
Emblesy Chief	19130	5337	Clyde.	5783	1916	M. McMullen	Perth No. 1	F. 1918	1*
Percy Performer 2nd	767	3819	Hack.	4384	1912	Thos. Giff	Smith's Falls	F. 1919	1
Brown Acme	13613	3801	Clyde.	4424	1912	John McEwen	Smith's Falls	S. 1919	1
Bird Peter	1868	4416	St. Br.	4810	1908	Phillips Brothers	Smith's Falls	S. 1916	1
Dappledale Chief	14280	4174	Clyde.	4651	1912	Thomas Scott	Smith's Falls	F. 1918	1*
Jess Willard	810	4729	Hack.	5250	1915	Robert B. Wills	Smith's Falls	F. 1918	1*
Curiosity	17029	4807	Clyde.	5248	1914	Duncan Cameron	Wemyss	F. 1918	1*

LEEDS COUNTY

Hal Wilkes	0142	5688	St. Br.	6334	1916	W. N. Cross	Athens	S. 1920	1
Kazak (imp.)	3764	3052	Per.	3546	1910	W. H. Comstock Estate	Brockville	S. 1919	1
Peter Baron	2217	5451	St. Br.	6072	1916	Proctor Giffin	Brockville No. 2	S. 1919	1*
Hableur (imp.)	2241	1827	Per.	1298	1907	John F. McCan	Brockville	F. 1914	1
Prince Dodge Ruby	17768	4580	Clyde.	4993	1911	Jas. Pearson & Son	Brockville No. 2	F. 1918	2
Goldbury (imp.)	449	2651	Hack.	816	1904	Otis E. Jones	Chantry	F. 1912	1
Prince Harmony	5851	578	Clyde.	236	1904	W. J. Gibson	Gananoque	F. 1912	1
Idalion	3917	3942	Per.	4438	1912	Albert Goff	Gananoque	F. 1918	1*
Darby Chief	21429	5585	Clyde.	6233	1917	Albert Tye	Lyndhurst	S. 1920	1
Sir Laird	17554	5041	Clyde.	5516	1915	James A. Whitmore	Plum Hollow	F. 1919	1
Baron Kirkcowan (imp.)	11679	1321	Clyde.	1867	1908	Melvin Logan	Rockspring	F. 1916	1
Northland Baron	5848	316	Clyde.	139	1905	Joseph Gainford	Seeley's Bay	S. 1915	1
Bonar Law	2935	4877	St. Br.	5221	1912	D. A. Curtis	Westport	F. 1918	1*
Gold Hal	030	36	St. Br.	92	1902	J. C. Forrester	Westport, Box 99	F. 1912	1
Hurleur (imp.)	1599	1081	Per.	2	1907	John F. Mulville	Westport	F. 1917	A1
Holdenby Druid (imp.)	535	664	Shire.	136	1905	William Taggart	Westport	F. 1914	1

LENNOX AND ADDINGTON COUNTIES.

Victor William (imp.)	16377	3894	Clyde.	4462	1912	Gladwin Clement	Bath	S. 1919	1
La Premiere (imp.)	1356	443	Per.	888	1907	Anson McKeown and Joe Cavanaugh	Centreville	F. 1914	1
Sir John Simpson (imp.)	10910	3074	Clyde.	3251	1908	John Stinson	Erinsville	S. 1917	1
Captain Joe	4878	5266	Per.	5724	1915	C. W. Hambly	Napanee	S. 1919	1*
Sir Donald's Pride	13030	1423	Clyde.	1662	1910	Arthur Murphy	Napanee	F. 1917	1
Rouget 2nd	9841	5586	Per.	6264	1915	Hiram Shannon	Napanee No. 5	S. 1920	1
Cheri (imp.)	3741	1936	Per.	2091	1902	W. H. Preston and A. E. Howard	Stella	S. 1913	1
Prince George	10926	2042	Clyde.	2820	1909	John Finn	Tamworth	F. 1916	1
Ross MacGregor	15203	4042	Clyde.	4258	1912	T. A. Martin	Tamworth	F. 1918	1*
Justin (imp.)	3057	1085	Per.	1568	1909	Wellington Murphy	Yarker	F. 1916	1

LINCOLN COUNTY.

The Laird	13961	137	Clyde.	710	1909	Stanley Young	Caistor Centre No. 1	F. 1916	1
Baron Kelton (imp.)	7916	470	Clyde.	1052	1907	Albert Speck	Jordan No. 1	F. 1918	1
Glenleith of Larkin Farm	16935	5025	Clyde.	5140	1914	William Crawford	Niagara-on-the-Lake	F. 1918	1*

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LINCOLN COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Kinleith Pride (imp.)	12455	2654	Clyde.	813	1907	John D. Larkin	Queenston	F. 1914	1
Dustless McKinney	2187	5458	St. Br.	6077	1907	J. B. Merritt	Smithville No. 1	S. 1919	1
Karlos (imp.)	3820	3225	Per.	3618	1910	Morley A. Merritt	Smithville	S. 1919	1
Bingen Royal	2424	3020	St. Br.	3569	1910	A. D. Middaugh	Smithville	F. 1918	1
Goble	1386	1377	St. Br.	2225	1905	I. E. Springstead	Smithville	F. 1914	1
Ithamar	2227	4731	St. Br.	5293	1914	T. A. Crow J. E. Swartz, Mgr.	Toronto St. Catharines	S. 1919	1*
John R. Hall	0100	4805	St. Br.	4773	1907	T. A. Crow J. E. Swartz, Mgr.	Toronto St. Catharines	S. 1916	1
Wilkoe	2776	5252	St. Br.	5845	1908	Albert A. Devlin, 39 Wellington St.	St. Catharines	F. 1918	1
Coronation Boy	3167	5675	St. Br.	6145	1902	J. S. Hill, 12 Church St.	St. Catharines	S. 1920	1
Stehr	10364	3068	Per.	1343	1905	R. J. Stewart	St. Davids	F. 1919	1
Kelvin Pride	12454	4100	Clyde.	1048	1910	Felix Sundeen	St. Davids	S. 1920	1
Lincoln Chief	17242	5494	Clyde.	6115	1915	E. B. Hutt	Vineland No. 1	F. 1919	1
Prince Glancine	3113	689	Per.	876	1910	J. H. Middlefehldt	Wellandport	F. 1918	1

MIDDLESEX COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Tatler (imp.)	14584	1656	Clyde.	2571	1910	Chas. Bean & Sons	Ailsa Craig No. 2	S. 1919	1
Black Baronet (imp.)	10350	1168	Clyde.	999	1908	Chas. Bean & Sons	Ailsa Craig No. 2	F. 1916	2
King's Courtier (imp.)	12556	2070	Clyde.	2694	1910	Henry McClurg	Ailsa Craig	F. 1918	1
Killellen Chief (imp.)	11582	439	Clyde.	848	1907	Donald McIntyre	Ailsa Craig	S. 1915	1
St. Patrick	2862	567	Per.	388	1900	Donald McIntyre	Ailsa Craig	F. 1912	1
Branton Surprise (imp.)	10349	438	Clyde.	845	1907	Alex. F. McTavish & Son	Appin No. 2	F. 1914	1
Royal Dennis	16364	4551	Clyde.	4975	1913	Richard Pettit	Appin	F. 1919	1
Brown Axtellion	2995	5493	St. Br.	6099	1904	Chas. W. S. Harkness	Belmont	F. 1919	1
Prince of Roxborough 2nd	15958	1213	Clyde.	2095	1909	E. G. Legge	Belmont	F. 1916	1
Jelly's Favourite	18941	4786	Clyde.	5306	1914	George Weir	Belmont No. 3	F. 1918	1*
Labour (imp.)	3853	2919	Per.	3472	1911	John D. McGregor	Byron No. 1	F. 1918	2
Patchen Wilkes 2nd	646	819	St. Br.	1889	1908	Sidney G. Hodgins	Clandeboye	S. 1917	1
Bright Star	11536	2060	Clyde.	2486	1907	Currie Brothers	Denfield	F. 1914	1
Cawdor Laird (imp.)	11455	1830	Clyde.	2024	1907	Arthur F. O'Neil	Denfield No. 2	F. 1914	2
Sidon	4725	1810	Gr. Ch.	2380	1905	H. T. Rigney	Denfield	F. 1914	1
Shawnee Prospero	9699	5509	Per.	6118	1917	John McMillan	Glanworth	F. 1919	1
Golden Glow	11275	1918	Clyde.	1809	1909	James Gilbert	Glencoe	F. 1916	1

Blackband (imp.)	6194	25	Clyde.	1313	1901	D. K. McRae	Glencoe	F. 1914	1
Ascot's Heir (imp.)	9646	2380	Clyde.	763	1904	Morley Wass	Granton	F. 1914	1
Gladiator 2nd	17237	4348	Clyde.	4791	1913	A. M. Dickie	Hyde Park	F. 1919	A1
Morris	9327	5441	Per.	1523	1915	Albert Kennedy and Colin McKeigan	Ilderton	S. 1919	1*
King's Court	19050	4882	Clyde.	5397	1915	John McIntosh	Ilderton No. 2	F. 1918	1*
Oakland's Favourite	13698	3527	Clyde.	3610	1912	G. E. Nixon	Ilderton No. 3	S. 1919	2
Glen McQueen	17439	5066	Clyde.	5562	1915	Robert Denning	Kerwood No. 2	F. 1919	1
Director	9227	5526	Per.	6159	1917	Gus Campbell	Lambeth	F. 1919	2
Blacon Beau (imp.)	8127	918	Clyde.	1588	1904	Thomas Crapp	Lambeth	S. 1915	1
Victor (imp.)	9428	4443	Per.	4027	1901	Alex. D. Jackson	Lambeth No. 3	F. 1914	1
Wild Mayo (imp.)	London	4679	Hunter	5099	1904	Adam Beck	London	S. 1916	1
Kothorne (imp.)	3004	518	Per.	559	1910	Guest & Wilkinson	London No. 5	F. 1918	1
Dunure Friendship (imp.)	13675	1252	Clyde.	2022	1911	Wilkinson & Guest	London No. 5	F. 1918	1
Lord Armstrong (imp.)	9309	3809	Clyde.	4151	1904	Irwin Harris and Thomas Crapp	London	S. 1915	1
Zeppelin	8968	5328	Per.	5979	1915	Lafayette Stock Farm Co., Ltd.	London	S. 1919	1*
Zique	9702	5506	Per.	6117	1917	Lafayette Stock Farm Co., Ltd.	London	F. 1919	1
Jayette	10432	5664	Per.	6273	1913	Lafayette Stock Farm Co., Ltd.	London	S. 1920	1
Woodrow Wilson	5913	5671	Gr. Ch.	6275	1914	Lafayette Stock Farm Co., Ltd.	London	S. 1920	1
Napolitian	9700	5498	Per.	6106	1911	Lafayette Stock Farm Co., Ltd.	London	F. 1919	1
Jay (imp.)	2262	1876	Per.	2618	1909	Lafayette Stock Farm Co., Ltd.	London	F. 1916	1
Kitchener	8891	5515	Per.	6167	1917	Lafayette Stock Farm Co., Ltd.	London	F. 1919	2
Mouchoir (imp.)	4725	3913	Per.	4342	1912	Lafayette Stock Farm Co., Ltd.	London	F. 1918	A1*
Hannibal	9698	5499	Per.	6107	1915	Lafayette Stock Farm Co., Ltd.	London	F. 1919	A1
Grecourt Junior	9695	5502	Per.	6110	1912	Lafayette Stock Farm Co., Ltd.	London	F. 1919	A1
Graymont	9697	5503	Per.	6111	1916	Lafayette Stock Farm Co., Ltd.	London	F. 1919	A1
Diamond	9696	5500	Per.	6108	1915	Lafayette Stock Farm Co., Ltd.	London	F. 1919	A1

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MIDDLESEX COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Junior (imp.)	3824	2847	Per.	3399	1909	Lafayette Stock Farm Co., Ltd.	London	F. 1919	A1
Hindenburg	1816	4916	St. Br.	5264	1914	Robert and Ben. Pierce	Longwood No. 2	F. 1918	1*
Sir Robert Calder	22194	5566	Clyde.	6251	1917	James Small	Longwood	S. 1920	1
Boavista	2216	4809	St. Br.	5263	1907	C. E. McLean	Melbourne	S. 1917	1
Black Knaught	14261	1935	Clyde.	2192	1910	Duncan McLean	Melbourne	F. 1918	2
Javelot (imp.)	3834	2878	Per.	3452	1909	J. H. Thompson	Mt. Brydges	F. 1916	1
Toupet (imp.)	1066	1179	Per.	10	1905	J. H. Thompson	Mt. Brydges	F. 1914	1
Grattan Royal	2877	5292	St. Br.	5907	1908	Charles Barrett	Parkhill, Box 207	S. 1919	1
Lord Gray (imp.)	12390	67	Clyde.	1007	1910	Andrew Erskine	Parkhill No. 8	F. 1919	A1
Simon's Stamp	22011	5616	Clyde.	6246	1916	Jos. H. Horner	Parkhill No. 3	S. 1920	1
Kif Kif (imp.)	3760	3236	Per.	3710	1910	D. R. McKenzie and J. W. and H. A. Ross	Parkhill No. 7	F. 1918	1
Baron Romeo	20883	5527	Clyde.	5830	1916	J. D. McPhee	Parkhill	F. 1918	1*
Sir Simon Romeo	16919	4083	Clyde.	4612	1912	J. D. McPhee	Parkhill	F. 1919	A1
Dunure Link (imp.)	13042	1091	Clyde.	729	1902	William Ross, Jr.	Parkhill	F. 1912	1
Eel of the Nile	2026	4666	St. Br.	5082	1913	A. G. Shortt	Parkhill	F. 1919	2
King's Herald (imp.)	7203	564	Clyde.	275	1901	Joseph Whimp	Parkhill	F. 1912	1
Gatignol (imp.)	1127	118	Per.	781	1906	Elwood Zavitz	Poplar Hill	F. 1914	1
Gladiator 2nd	17237	4348	Clyde.	4791	1913	Elwood M. Zavitz	Poplar Hill	F. 1919	A1
Bath	4132	2690	Per.	746	1902	Albert Allen	Strathroy No. 3	S. 1913	1
Nelson Macellus	20604	5698	Clyde.	6333	1917	T. Douglas and Sons	Strathroy	S. 1920	1
McIntosh Best	17877	4098	Clyde.	4497	1912	McIntosh Brothers	Strathroy No. 6	F. 1918	1*
Jadisen	10482	5692	Per.	6351	1914	Colin McKeigan	Strathroy	S. 1920	1
Intrepide, Jr.	10466	5691	Per.	6353	1917	Colin McKeigan	Strathroy	S. 1920	1
Largen	10467	5693	Per.	6350	1917	Colin McKeigan	Strathroy	S. 1920	1
Aldino	2656	5177	St. Br.	5655	1909	Colin McKeigan	Strathroy	S. 1918	1
Togo	211	1268	St. Br.	2031	1903	Colin McKeigan	Strathroy	F. 1914	1
Charming Prince	20671	5279	Clyde.	5885	1915	Colin McKeigan and Ben Bryson	Strathroy	S. 1919	1*
Cerus (imp.)	30	1650	Per.	2605	1900	Archie Pedden	Strathroy	F. 1914	1
Rex	10517	5708	Per.	6352	1913	Archie Pedden	Strathroy	S. 1920	1
Vigoureaux	10006	5495	Per.	6112	1913	Archie Pedden	Strathroy	F. 1919	1
All Belsire	2596	5044	St. Br.	5558	1915	Walter Riddell	Thorndale	F. 1919	1
Baron of Vimy Ridge	20591	5182	Clyde.	5690	1916	Chas. Weston	Thorndale No. 4	F. 1919	1

Imperial Royal	2673	494	Per.	1352	1905	Stewart Wright	Wardsville	F. 1914	2
Unko	183	2265	St. Br.	2894	1905	P. J. Kearns	Wardsville	S. 1914	1
Dunure Acknowledgement (imp.)	8457	1385	Clyde.	1113	1906	Robert Brown	Wilton Grove No. 1	F. 1914	1

NORFOLK COUNTY

Pride of Columbie	11547	674	Clyde.	98	1909	Wm. Balcom	Langton	S. 1917	1
Carenot (imp.)	14657	2327	Clyde.	2946	1908	John Cameron	Langton	F. 1916	1
Royal George	4698	4142	Per.	4600	1912	John H. Wheeler	Lyndoch	F. 1918	1*
Vimy	7685	5624	Per.	6295	1917	A. M. Collver	Nixon	S. 1920	1
Sir Sam	5506	4733	Per.	5137	1914	A. M. Collver	Nixon	F. 1918	1*
Halaska (imp.)	1598	398	Per.	1373	1907	Willson Fry	St. Williams	S. 1916	2
Baron Howes	7791	3281	Clyde.	520	1905	W. C. Everett	Simcoe	F. 1914	1
King Peter	4569	5020	Per.	5138	1914	Milton Porter	Simcoe	F. 1918	1*
Clemenceau	9222	5544	Per.	6165	1918	Milton Porter	Simcoe	F. 1919	1
Baron Spark	21668	5543	Clyde.	6162	1916	Milton Porter	Simcoe	F. 1919	1
Metallis King	465	15	St. Br.	1349	1903	K. A. Shaw	Simcoe, Box 443	S. 1914	1
Bonniere	3105	4303	Per.	4790	1912	Louis Beemer	Waterford	F. 1919	1
Chatere (imp.)	1059	2416	Per.	2968	1905	Louis Beemer	Waterford	F. 1918	A1
Willchester	4869	5244	Per.	5848	1915	Louis Beemer	Waterford	F. 1918	1*
Silloth Baronet	18100	5579	Clyde.	6291	1915	Delmer Blaney	Waterford	S. 1920	1
Paradox	7991	5623	Per.	6294	1917	H. C. Collver	Waterford No. 3	S. 1920	1
Jack of Columbie	22502	5657	Clyde.	6293	1916	Edwin Hart	Waterford No. 3	S. 1920	1
Petrograd	4933	5030	Per.	5142	1915	James R. Irwin	Waterford	F. 1918	1*
Clodion	3648	2189	Per.	1047	1907	J. R. Irwin	Waterford	F. 1914	2
Prince of Triumph	17293	5353	Clyde.	6001	1915	Emerson Pickell	Waterford	S. 1919	1*

NORTHUMBERLAND COUNTY

Royal Vaillant	8369	5465	Per.	6068	1917	W. T. Fritz	Brighton	S. 1919	1*
Ames Inclement	9703	5504	Per.	6114	1916	J. W. Herrington	Brighton	F. 1919	A1
Lunsdale Laddie	1250	5627	Shire.	6277	1914	John Begg	Campbellford No. 5	S. 1920	2
Juvenil	9773	5552	Per.	6186	1917	John Locke	Campbellford	F. 1919	1
Surprise	1601	432	Per.	810	1909	Macoun, Locke & Company	Campbellford No. 4	F. 1916	1
Craigie Junior	17080	4358	Clyde.	4833	1914	Alfred Merrell	Campbellford No. 1	F. 1919	1
MacInnes 2nd	4098	2659	Clyde.	3031	1901	Dan Petherick Jr.	Campbellford	S. 1914	1
Bricanan	6565	5062	Per.	5527	1915	D. J. Arkles & J. C. Anderson	Castleton	F. 1919	A1

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NORTHUMBERLAND COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Robert Montrave	20265	5205	Clyde.	5674	1915	L. W. Naish	Castleton No. 2	F. 1919	2
Royal MacQueen	3172	426	Clyde.	766	1900	David H. Taylor	Centreton	F. 1912	1
Craigie Banner (imp.)	13759	1599	Clyde.	1228	1910	Edward Budd	Cobourg	S. 1919	1
Wilbur	227	5576	Suff.	6298	1916	Mrs. Lily A. Livingston	Cobourg	S. 1920	1
Ildrim	1124	5575	Thor.	6297	1897	Mrs. Lily A. Livingston	Cobourg	S. 1920	1
Kingship	1	4338	Thor.	4742	1907	Mrs. Lily A. Livingston	Cobourg	S. 1916	1
Lovetie	1125	5574	Thor.	6296	1907	Mrs. Lily A. Livingston	Cobourg	S. 1920	1
Jimmie Glen	17426	4844	Clyde.	5406	1913	C. J. McCarthy	Cobourg No. 6	S. 1919	1*
Ned Fenelon	5683	4718	Per.	5181	1914	Frank Pillsworth	Cobourg	F. 1918	1*
Royal Prince	8951	2610	Clyde.	3292	1908	Reuben S. Waite	Colborne	S. 1915	1
Glenavon	11467	3166	Clyde.	3427	1907	Robert Carstairs	Fenella	S. 1916	1
Dunure Dan	16530	4843	Clyde.	5355	1912	Robert Carstairs	Fenella	S. 1919	1
Prince Edward	10860	2852	Clyde.	3047	1909	James Gunter	Frankford No. 1	S. 1916	1
Baron Audubon	757	659	St. Br.	1371	1905	William Knight	Grafton	F. 1914	1
J. Leviathan	2682	2961	Per.	3493	1911	W. L. Anderson	Hoards Station	F. 1918	2
McMartin	46	392	St. Br.	572	1909	Chas. Puffer	Morganston	F. 1916	1
Klinis (imp.)	4049	2948	Per.	3494	1910	Douglas Turney	Morganston	F. 1917	A1
Nydo	2021	4508	St. Br.	4880	1914	E. A. Haynes	Norham	F. 1919	1
Prince Frickland	21047	5338	Clyde.	5915	1915	Thomas Carew	Roseneath, Box 95	S. 1919	1*
Nuthurst W.	1573	3613	St. Br.	893	1897	Eldridge Thackeray	Roseneath	F. 1912	1
Kosu B.	7060	5267	Per.	5918	1916	John Gainer	South Monaghan	S. 1919	1*
Gay Baron	8478	2090	Clyde.	2819	1906	J. T. Parks	Trenton	F. 1914	1
Lionel Baron	18188	4628	Clyde.	5077	1914	Lewis B. Stinson	Trenton No. 1	F. 1919	1
King's Courtier (imp.)	12777	2132	Clyde.	959	1909	Lewis Ament & Son	Vernonville	S. 1919	1
Arthur King	1211	3904	St. Br.	4289	1911	Chas. F. Pettifer	Warkworth	S. 1919	1
Blacon St. Clair	13354	3772	Clyde.	4211	1911	Burton Ferguson	Wooler No. 1	F. 1918	1

ONTARIO COUNTY

Name of Stallion.	Can. Rec. No.	Enrolment No	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Baron Aberdeen	21005	5410	Clyde.	6050	1915	William Gardner	Ashburn	S. 1919	1*
Tara Baron	17148	5125	Clyde.	5672	1913	E. E. Wright	Ashburn	F. 1919	A1
Woodrow Wilson	8668	5321	Per.	5970	1914	Hodgkinson & Tisdale	Beaverton	S. 1920	A1
Miroton (imp.)	4444	3713	Per.	4246	1912	Hodgkinson & Tisdale	Beaverton	F. 1918	A1*
Carpenter	8392	5520	Per.	6231	1918	Hodgkinson & Tisdale	Beaverton	S. 1920	1
Briton	2913	5362	St. Br.	5974	1910	C. H. Lawrence	Beaverton	S. 1919	1
Mack Baron	15959	3096	Clyde.	3651	1911	Donald McRae	Beaverton	S. 1919	1

Kelton	19067	4869	Clyde.	5339	1915	Finlay McRae	Beaverton No. 1	F. 1918	1*
Prince Acme	15573	4516	Clyde.	4999	1913	James Innes	Blackwater	F. 1919	A1
Royal Everett	16351	3754	Clyde.	4248	1912	Patrick Gaughan	Brechin	F. 1918	1*
Ardimersay Duke (imp.)	14240	3121	Clyde.	2115	1905	William R. Lytle	Brechin	S. 1913	1
King Saul (imp.)	9588	2517	Clyde.	3116	1907	Oscar Wilson	Brougham	F. 1914	1
Easy Fortune	11029	884	Clyde.	1693	1910	John T. Jewell	Cannington	F. 1918	1
Gold Rod	17213	4991	Clyde.	5481	1915	Edward Lambert	Cannington	F. 1918	1*
Ascot Pride	19385	5183	Clyde.	5729	1916	Geo. Davidson & Sons	Cherrywood	F. 1919	1
MacAlexander	21299	5412	Clyde.	6052	1916	James Evans	Claremont	S. 1919	1*
Bonnie Flisk (imp.)	18260	4797	Clyde.	5370	1913	Graham Brothers	Claremont	S. 1919	A1*
Royal Cadet (imp.)	13844	1490	Clyde.	1247	1909	Graham Brothers	Claremont	S. 1920	A1
Terrington Cetewayo (imp.)	401	601	Hack.	437	1905	Graham Brothers	Claremont	S. 1920	A1
Flashgate	20373	5078	Clyde.	5608	1915	E. F. Percy	Claremont	F. 1919	1
Black Model	16880	4811	Clyde.	5315	1914	Nelson Wagg	Claremont	F. 1918	1*
Inaltere (imp.)	2144	151	Per.	774	1908	Nelson Wagg	Claremont	F. 1916	1
Viscount Kinnaird (imp.)	13822	3208	Clyde.	1144	1909	Fred Richardson	Columbus	F. 1918	1
Royal Favour	18361	4850	Clyde.	5199	1910	Smith & Richardson	Columbus	F. 1919	A1
Village Swain (imp.)	15167	2883	Clyde.	3446	1912	Smith & Richardson	Columbus	F. 1918	A1*
Glad Eye (imp.)	21946	5598	Clyde.	6235	1914	Smith & Richardson	Columbus	S. 1920	A1
Helsington Champion	21944	5653	Clyde.	6327	1911	Smith & Richardson	Columbus	F. 1919	A1
Royal Design	17286	4849	Clyde.	4967	1914	Smith & Richardson	Columbus	F. 1918	A1*
Kello Crest	21945	5587	Clyde.	6123	1913	Smith & Richardson	Columbus	F. 1919	A1
The Select	21947	5590	Clyde.	6224	1916	Smith & Richardson	Columbus	F. 1919	A1
Everard (imp.)	16333	4848	Clyde.	4237	1913	Smith & Richardson	Columbus	F. 1918	A1*
Destiny	21949	5588	Clyde.	6124	1917	Smith & Richardson	Columbus	F. 1919	A1
Tressilian (imp.)	16332	4084	Clyde.	4234	1911	Smith & Richardson	Columbus	F. 1918	A1
Westminster	21948	5589	Clyde.	6125	1917	Smith & Richardson	Columbus	F. 1919	A1
Knight of Maryfield (imp.)	7760	4527	Clyde.	5026	1904	Smith & Richardson	Columbus	S. 1916	1
King's Heather	14049	4836	Clyde.	5327	1911	D. Ryan	Dunbarton	F. 1918	A1
George of Claremont	13937	5360	Clyde.	6002	1912	Frank Baker	Goodwood No. 1	S. 1919	1
Lord Erskine Cairndale	17038	4394	Clyde.	4858	1914	R. Milne & Sons	Locust Hill No. 1	F. 1919	A1
U. F. O.	22020	5530	Clyde.	6187	1917	J. A. Carmichael	Myrtle	F. 1919	1
Acme Pride	19334	4980	Clyde.	5470	1914	William Hopkins	Myrtle Station No. 1	F. 1918	1*
Cairnbrogie Heir	18299	5128	Clyde.	5666	1915	W. H. Pugh	Myrtle Station	F. 1919	2
Terrington Bellman (imp.)	294	745	Hack.	1256	1903	W. H. Pugh	Myrtle Station	F. 1912	1
Baron Elect (imp.)	5629	746	Clyde.	1257	1903	W. H. Pugh	Myrtle Station	F. 1912	1
Paddy B.	1958	1430	Per.	2028	1901	Richard Gimblett	Oshawa	F. 1914	1
King's Courtship (imp.)	14115	1677	Clyde.	1217	1906	Chas. Groat	Oshawa	F. 1914	1
Simon	21389	5642	Clyde.	6285	1916	W. A. Ormiston	Oshawa No. 2	S. 1920	1
Gallant Refiner	16972	5124	Clyde.	5669	1914	David Annan, Sr.	Pickering	F. 1919	1

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ONTARIO COUNTY—*Continued.*

Name of Stallion	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Brown Gallant	17019	4227	Clyde.	4688	1913	J. S. Beare	Pickering No. 2	S. 1919	1*
Gallant Solway (imp.)	13931	604	Clyde.	440	1910	R. J. Fleming	Pickering	F. 1917	1
On Guard (imp.)	13409	390	Clyde.	790	1906	R. J. Fleming	Pickering	F. 1914	1
Bucephalus 2nd	18079	5421	Clyde.	5827	1915	Frank Puckrin	Pickering	F. 1918	1*
Pomeroy	777	3032	St. Br.	3409	1909	A. G. Dowson	Port Perry	S. 1916	1
Clan Favourite (imp.)	10654	1169	Clyde.	1030	1905	Joseph Stone	Port Perry	F. 1914	1
Handsome Roderick	17445	5571	Clyde.	6249	1915	George Clements	Seagrave No. 2	S. 1920	1
Royal Eastfield Lad	8166	2069	Clyde.	2677	1904	Nelson McDonald	Seagrave	S. 1914	1
Caringorm	9274	787	Clyde.	1815	1908	Samuel J. Gilbert	Sebright	S. 1917	2
Craigin of Brookdale	11066	694	Clyde.	907	1909	Alfred Yakley	Stouffville	S. 1917	2
Inventeur (imp.)	2146	2233	Per.	1653	1908	W. R. Ashenhurst	Sunderland	S. 1917	1
Speers	951	1364	St. Br.	936	1903	Hall & Shields	Sunderland	F. 1912	1
Hillhead Comet (imp.)	14710	1284	Clyde.	2003	1909	A. T. Switzer	Sunderland	F. 1916	2
Baron Smith (imp.)	5313	698	Clyde.	949	1904	John Warren	Udney	F. 1912	1
Floriston (imp.)	15258	3112	Clyde.	3663	1911	Alexander McGregor	Uxbridge	F. 1918	1
Prince of the Park (imp.)	9687	3480	Clyde.	3503	1907	Russell Sonley	Uxbridge	F. 1914	1
Paraplegie	4836	5282	Per.	5792	1915	J. H. Willson	Uxbridge	F. 1918	1*
Celtic Premier	16668	4414	Clyde.	4749	1913	J. W. Lambert	Wilfrid	F. 1919	1
High Tide (imp.)	13838	1112	Clyde.	1210	1908	Henry Thompson	Zephyr	S. 1917	1
Examiner (imp.)	18262	4802	Clyde.	5375	1914	Henry Thompson	Zephyr	F. 1918	1*

OXFORD COUNTY

Name of Stallion	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Wynholm (imp.)	16473	3921	Clyde.	4360	1911	James Baker	Bright	F. 1919	1
King of the Saxons (imp.)	13760	711	Clyde.	1265	1910	W. B. Parker	Bright No. 1	F. 1918	A1
Longtemps (imp.)	4466	3990	Per.	4085	1911	W. B. Parker	Bright No. 1	F. 1918	1
Eagle Patch	2072	4684	St. Br.	5104	1913	Harry Bell	Eastwood	F. 1918	1*
Sky Pilot	855	2513	St. Br.	1105	1900	R. J. Chamberlain	Embro No. 5	F. 1914	1
McCluskey	20589	5696	Clyde.	6343	1916	Fred Hummason	Embro No. 1	S. 1920	1
Mucius (imp.)	13896	352	Clyde.	334	1903	Henry E. Schaefer	Embro No. 5	F. 1912	1
Prince Robert	12755	4962	Clyde.	1480	1911	George Smith	Embro	S. 1919	1
Gregory Dare	1645	4369	St. Br.	4915	1913	John H. McKay	Harrington	F. 1919	2
Pride of Roxburgh	10797	1190	Clyde.	1359	1909	John H. & Frank Hicks	Ingersoll	F. 1916	1
Nogent	4458	4561	Per.	4994	1913	Freeman Oliver	Ingersoll	F. 1919	1
Duskie Knight	17969	5388	Clyde.	5698	1916	S. J. Prouse	Ingersoll	S. 1919	1*
Crown Dick	16947	4448	Clyde.	4823	1914	George Chesney	Innerkip	S. 1920	1

Oxford's Pride	14818	1467	Clyde.	2270	1909	Andrew Farrell	Norwich	F. 1916	1
Haimon	4337	2616	Gr. Ch.	2450	1904	J. B. Johnson	Norwich	S. 1915	1
Golden Powis	12922	3945	Clyde.	4066	1911	William Holmes	Otterville	S. 1920	1
Bohrangus 2nd	9541	323	Clyde.	163	1909	H. G. Treffry	Otterville No. 2	S. 1917	1
Duke of Ardlethan	17159	4453	Clyde.	4789	1914	William M. Fletcher	Ostrander	F. 1919	1
Ildebert (imp.)	3028	2193	Per.	2841	1908	F. & G. Parkin	Oxford Centre	S. 1916	1
Romadore	3512	3659	Per.	4036	1912	F. & G. Parkin	Oxford Centre	F. 1918	2*
Peter Wilton	858	775	St. Br.	1489	1905	Wesley Battler	Plattsville	S. 1920	A1
Golden Lad	17001	4234	Clyde.	4676	1912	Andrew S. Fleming	Springford	F. 1918	1*
Chief Guardian (imp.)	18267	4798	Clyde.	5371	1914	P. Herold	Tavistock	S. 1919	A1*
Lassis (imp.)	3920	4309	Per.	4777	1911	Ratz & Herold	Tavistock	F. 1918	A1
Adbolton Premier	840	4717	Hack.	5145	1915	Wm. & Henry Lingelbach	Tavistock No. 1	F. 1918	A1*
Crown King	18915	4755	Clyde.	5126	1914	Annie Wettlaufer	Tavistock No. 1	F. 1918	A1*
Royal Friendship	18786	5046	Clyde.	5624	1915	Wm. Furse	Thamesford	F. 1919	1
Burnbrae Prince	21804	5553	Clyde.	6253	1917	John Hutchison	Thamesford	S. 1920	1
Black Prince	4832	4914	Per.	5151	1914	R. & W. B. McFarlan	Thamesford	F. 1918	1*
Rupin (imp.)	1061	577	Per.	230	1906	The Percheron Horse Co.	Thamesford	S. 1917	2
Dell Heart	1705	4724	St. Br.	5144	1914	Ira Hayward	Tillsonburg	F. 1918	1*
Golden Limit	2931	5547	St. Br.	5852	1915	Bert Markle	Tillsonburg	F. 1918	1*
Papillon (imp.)	1062	2885	Per.	724	1905	R. B. Moulton	Tillsonburg	S. 1914	1
Gentry H.	0173	5560	St. Br.	6259	1916	R. W. White	Tillsonburg	S. 1920	1
Craigie Buchlyvie	12615	3294	Clyde.	451	1909	S. W. Jackson	Woodstock	S. 1916	1
Lodi (imp.)	4015	3211	Per.	3718	1911	G. H. Raper	Woodstock	F. 1918	1

PEEL COUNTY

Spier Peter	2824	5470	St. Br.	6063	1917	George A. Cameron	Alton	S. 1919	1
Lumley's Best	1003	2421	Shire.	2898	1910	R. B. Coulter	Alton No. 2	S. 1917	1
Gordon Heather	22207	5663	Clyde.	6230	1916	Samuel Elliott	Bolton No. 4	F. 1919	1
Baron George	20546	5581	Clyde.	6140	1917	Goodfellow Brothers	Bolton	F. 1919	1
Auldbrick	20545	5582	Clyde.	6141	1917	Goodfellow Brothers	Bolton	F. 1919	1
Baron Gregor (imp.)	14051	1611	Clyde.	2481	1910	Goodfellow Brothers	Bolton	F. 1917	A1
Kircudbright Baron (imp.)	14055	1597	Clyde.	2480	1910	Goodfellow Brothers	Bolton	F. 1917	A1
Prince Honour	21393	5625	Clyde.	6286	1917	A. McCort & Son	Bolton	S. 1920	1
Lothian Jim	21680	5507	Clyde.	6120	1916	Geo. J. Riddell	Bolton	F. 1919	1
Baron Silver Prince	21712	5569	Clyde.	6262	1917	Robert Robinson	Bolton No. 3	S. 1920	1
Sandy MacNab	14272	2980	Clyde.	3526	1912	Robert H. Thomas	Bolton	F. 1918	1*
Gachill (imp.)	2276	2863	Per.	505	1906	John Andrews	Brampton	F. 1914	1
Brampton Mac	21581	5617	Clyde.	6316	1918	Alex. R. Black	Brampton No. 2	S. 1920	1

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PEEL COUNTY—*Continued.*

Name of Stallion	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Milton's Last (imp.)	12487	214	Clyde.	1198	1908	G. Bell & Wm. Findley	Brampton	F. 1917	1
Golden Favourite (imp.)	11456	371	Clyde.	494	1908	G. Bell & Wm, Findley	Brampton	F. 1917	A1
Earl Scott (imp. in dam)	20028	5012	Clyde.	5540	1913	Guy Bell	Brampton	F. 1919	1
Prince Hohenlohe	127	860	Thor.	1656	1904	James Bovaird	Brampton	S. 1915	1
Great Times	15407	4377	Clyde.	4750	1913	James Bovaird	Brampton	F. 1919	1
Hugo Brunstane	17614	5172	Clyde.	5723	1915	W. D. Dolson	Brampton No. 3	S. 1920	1
Gateside Favourite (imp.)	15226	3153	Clyde.	3682	1912	Nix & Nixon	Brampton	F. 1918	1*
Spartan (imp.)	509	1127	Hack.	1263	1905	James Tilt	Brampton	F. 1919	A1
Pride of Albion (imp.)	14056	3014	Clyde.	3554	1911	Ronald Crawford	Caledon East	S. 1919	1
Shandon Wood	3037	5697	St. Br.	6349	1902	Thomas Smith	Caledon	S. 1920	1
Baron Hamlet (imp.)	6090	372	Clyde.	507	1904	W. J. Trathen	Caledon	F. 1912	1
Royal Graham	20263	5091	Clyde.	5587	1915	William G. Bailey	Inglewood No. 1	F. 1919	A1
Dan MacNab	14354	2995	Clyde.	3527	1912	Robt. Clarkson	Inglewood No. 1	S. 1919	1
Peel Baron	20415	5695	Clyde.	6329	1917	W. J. Hunter	Inglewood No. 1	S. 1920	1
Vimy Boy	19946	5626	Clyde.	6299	1917	Wm. J. Miller	Lakefield No. 4	S. 1920	1
Tuttlebrook Chief	1502	5622	Shire.	6319	1917	C. S. Gardhouse & Sons	Malton No. 1	S. 1920	1
Prince of Greenhall (imp.)	11684	570	Clyde.	506	1908	Albert Hewson	Malton No. 1	F. 1916	A1
Gallant Prince	21772	5636	Clyde.	6142	1917	Albert Hewson	Malton	F. 1919	1
Master Hillcrest	17869	5011	Clyde.	5532	1915	John Pendergast	Mono Road	F. 1919	1
Emulator (imp.)	4502	2047	Clyde.	1881	1903	Little Brothers	Mono Road No. 2	F. 1914	1
Better Baron	20568	5174	Clyde.	5747	1915	J. L. Clark	Norval Station	F. 1919	1
Lord Marthon	18200	5257	Clyde.	5906	1916	Jas. H. Patterson	Summerville	S. 1919	1*
Kiosque (imp.)	4010	3885	Per.	3294	1910	Donald McLaren & Wm. Brown	Terra Cotta	S. 1917	1
The Moose	1834	4709	St. Br.	5177	1914	Lewis A. Teeter	Terra Cotta No. 1	F. 1918	1*

PERTH COUNTY

Name of Stallion	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Knockinlaw Revolt (imp.)	15482	2982	Clyde.	3489	1911	John Gray	Atwood	F. 1918	A1
Alberta Besique (imp.)	6510	5591	Per.	6237	1916	J. H. Stephenson	Atwood (R.R. 1)	S. 1920	A1
Scottish Leader	21631	5448	Clyde.	5999	1916	Patrick J. Hogan	Bornholm	S. 1919	2*
Kiosque (imp.)	3195	3616	Per.	3971	1910	Edward Wood	Britton (R.R. 1)	S. 1919	1
The Raider	1541	5057	St. Br.	5560	1912	Wilfred Kerr	Brunner	S. 1920	1
Mornington Chief	20816	5386	Clyde.	5998	1916	Wilfred Kerr	Brunner	F. 1919	1
Victor	21079	5614	Clyde.	6081	1916	Geo. W. Wren	Cromarty (R.R. 1)	S. 1920	1
Junot (imp.)	3508	3358	Per.	3824	1909	Henry Stricker & Co.	Drayton	F. 1916	1

Cumberland Scott (imp.)	13979	2892	Clyde.	3183	1911	Robert Burchill	Dublin	F. 1919	1
Faraway Blend (imp.)	9006	1098	Clyde.	1650	1904	William H. Collins	Dublin (R.R. 2)	F. 1914	1
Punch of Glamis	17888	4806	Clyde.	5118	1914	J. C. Dill	Gadshill	S. 1919	1*
J. G. Sphinx	2647	5164	St. Br.	5659	1913	Thos. Moore	Gowanstown	F. 1919	1
Missouri Bars	2173	5016	St. Br.	5498	1914	W. J. Moore	Gowanstown	F. 1919	2
Mercedes Yet	12257	1668	Clyde.	2501	1907	Geo. Duffield	Granton	S. 1915	2
Gartly Forever (imp.)	8412	490	Clyde.	1197	1906	John Hanna	Kirkton	F. 1918	A1
Mitre Bearer	709	2483	St. Br.	3175	1904	John A. McIntyre	Listowel	F. 1914	1
Hesope (imp.)	1592	3568	Per.	614	1907	John McKeaver	Listowel	S. 1915	1
Overdale Star	20906	5684	Clyde.	6302	1917	Jas. M. Menzies	Listowel (R.R. 1)	S. 1920	1
King Charles	5537	5133	Per.	5285	1914	Allan Weber	Listowel	F. 1918	1*
Baron Rozelle	11554	3257	Clyde.	3742	1910	Arthur Maynard	Millbank	F. 1918	1
Signalman	8970	903	Clyde.	1569	1907	Jas. R. Broughton	Milverton	F. 1914	1
Chimes Axworthy	884	3091	St. Br.	3629	1911	M. H. and Ed. Bundscho	Milverton	S. 1919	1
Gilbert Patch	1571	5224	St. Br.	5778	1912	W. H. Grosch	Milverton	F. 1918	1*
Widower Peter	1791	3340	St. Br.	3809	1910	W. H. Grosch	Milverton	F. 1918	1
Kontrepoids (imp.)	3504	3906	Per.	4444	1910	Stephen C. McLellan	Milverton (R.R. 2)	S. 1917	2
King Norman (imp.)	17898	4480	Clyde.	4918	1909	Hugh Colquhoun	Mitchell	F. 1917	A1
Free Mason (imp.)	7847	841	Clyde.	1727	1905	William Colquhoun	Mitchell	F. 1914	1
Gartly Magnate (imp.)	22384	5609	Clyde.	6310	1915	William Colquhoun	Mitchell	S. 1920	1
Riverbank (imp.)	17954	4570	Clyde.	5034	1911	William Colquhoun	Mitchell	F. 1918	A1
British Hero	20573	5167	Clyde.	5670	1912	William Colquhoun	Mitchell	F. 1919	A1
Flashlight	0143	5218	St. Br.	5769	1916	D. Douglas & Sons	Mitchell (R.R. 4)	F. 1918	A1*
Scottish Mains (imp.)	11587	2077	Clyde.	2757	1908	Frederick Eisler	Mitchell (R.R. 4)	F. 1917	A1
Craigie Baronet (imp.)	17599	4392	Clyde.	4846	1912	Moses Forsyth	Mitchell	F. 1919	A1
Official	1751	4616	St. Br.	5061	1900	Henry James	Mitchell	S. 1916	1
Sololand	2302	4918	St. Br.	5428	1911	A. E. Larkworthy	Mitchell	F. 1918	1
Kamphre (imp.)	8965	5327	Per.	5978	1910	Litt & Woolacott	Mitchell	S. 1919	1
Toddy Direct	215	480	St. Br.	737	1906	George Riley	Mitchell	F. 1914	1
Mercury	21646	5611	Clyde.	6280	1916	W. J. Stinson	Mitchell	S. 1920	1
Dothan	60432	3773	St. Br.	4069	1912	Henry Victor	Mitchell	S. 1919	1
East Huron Prince	17982	4129	Clyde.	3966	1909	George Wolfe	Mitchell	F. 1916	1
Sydnwurt King	20670	5296	Clyde.	5916	1916	William J. Roger	Munro (R.R. 1)	S. 1919	1*
Bold Clyde	4133	5342	Clyde.	6000	1900	Robert Fleming	Poole	S. 1919	1
Sir Michael Martyn	16012	5490	Clyde.	6030	1911	Alexander Park	Russeldale	S. 1919	2
Oro Vero	1605	4852	St. Br.	4955	1914	Benjamin Allen	St. Mary's	S. 1920	1
Roslyn	3149	5557	St. Br.	6276	1917	Albert Armstrong	St. Mary's	F. 1919	1
Duke of Avon Brae	13919	1977	Clyde.	2740	1910	Alexander Thomson	St. Mary's	F. 1918	1
Sir Edmund (imp.)	9372	1524	Clyde.	2066	1899	D. F. Thomson	St. Mary's Box 391	F. 1914	2
Teddy Bars	1464	3507	St. Br.	3744	1905	W. L. Mossip	St. Mary's	F. 1914	1

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PERTH COUNTY—*Continued.*

Name of Stallion	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Millcraig Duke (imp.)	15669	3026	Clyde.	2498	1904	W. L. Mossip	St. Mary's	F. 1914	1
Karrare (imp.)	3071	1476	Per.	2360	1910	W. L. Mossip	St. Mary's	S. 1920	A1
Dalziel (imp.)	10626	3406	Clyde.	2442	1903	W. L. Mossip	St. Mary's	F. 1919	A1
Niagara Power	2789	3445	St. Br.	3899	1907	William Nickle	St. Mary's, Box 710	F. 1914	2
Anchor's Pride (imp.)	15220	3206	Clyde.	3727	1907	William Rae, Jr.	St. Mary's (R.R. 7)	F. 1914	1
King Mucius	21758	5485	Clyde.	6013	1916	Mrs. Lizzie Richardson	St. Mary's	S. 1919	1*
Sir Wilfred Paul	19849	5646	Clyde.	6307	1917	Walter Rae	St. Paul's Sta.	S. 1920	1
Willie Ben	19848	5647	Clyde.	6308	1917	Walter Rae	St. Paul's Sta.	S. 1920	1
Prince Allan	19303	5420	Clyde.	6039	1916	T. M. Kelly	Sebringville (R.R. 1)	S. 1919	1*
Conquering Baron (imp.)	10778	2365	Clyde.	2653	1904	William J. Malloy	Sebringville (R.R. 1)	F. 1914	1
Rosyth (imp.)	18326	4697	Clyde.	5131	1914	Henry Reidt	Shakespeare	F. 1918	1*
Lord Malcolm (imp.)	15194	3125	Clyde.	3665	1912	Thos. Colquhoun	Staffa	F. 1919	A1
Makwira (imp.)	15279	3267	Clyde.	3754	1908	John Livingstone	Staffa	S. 1916	1
Earl Johnson	1208	5346	St. Br.	3988	1908	John P. Aitcheson, 42 Wellington St.	Stratford	S. 1919	1
Locksley (imp.)	15239	3146	Clyde.	3612	1911	Austin Dingman, 35 Water St.	Stratford	F. 1918	A1
Baron Walker	14031	2726	Clyde.	2625	1910	Joseph Gerofsky, 129 Downie St.	Stratford	S. 1919	1
Black Electricity	2910	5344	St. Br.	5776	1914	William N. Headon	Stratford (R.R. 1)	S. 1919	1*
Prince of St. Paul's	10520	2427	Clyde.	2674	1908	Henry Metz	Stratford (R.R. 2)	S. 1915	1
Alladin (imp.)	13975	2426	Clyde.	2683	1911	Henry Metz	Stratford (R.R. 2)	F. 1918	1
Prince Victor (imp.)	5785	1620	Clyde.	1771	1902	Fred Riehl	Stratford	F. 1914	1
Marnix (imp.)	607	1519	Bel. Dr.	1059	1902	John Baier	West Monkton	F. 1912	1
Atwood Boy	14441	3818	Clyde.	4347	1912	Z. E. Gill	West Monkton	F. 1919	1
Galloway Lad	20460	5702	Clyde.	6354	1917	Alexander Henry	West Monkton	S. 1920	1
Baron Galloway (imp.)	8482	1753	Clyde.	2017	1904	Henry Brothers	West Monkton	F. 1914	1
Captain Murray	11746	2503	Clyde.	3191	1908	Theodore Riehl	Rostock	S. 1916	1

PETERBORO COUNTY

Name of Stallion	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Charming Rod	14635	3205	Clyde.	3726	1912	Fred Anderson	Bailieboro	F. 1918	2*
Craige MacQueen	17200	4647	Clyde.	5072	1914	Fred E. Chase	Chase Corners	S. 1919	2*
Acme's Echo	11623	2430	Clyde.	3135	1910	James Quinlin	Cordova Mines	F. 1918	1
McEwan's Pride	11622	3349	Clyde.	3818	1910	Marquis L. Post	Hastings (R.R. 3)	S. 1919	1
Royal Marathon	19471	5263	Clyde.	5449	1916	R. Walsh	Hastings	F. 1918	1*

Jamlon (imp.)	2333	2330	Per.	2635	1909	R. Walsh	Hastings	F. 1916	1
Jim Shell	257	2631	St. Br.	2636	1911	R. Walsh	Hastings	S. 1919	1
Jasin (imp.)	2335	721	Per.	1280	1909	R. Walsh	Hastings	F. 1916	1
Ben Lomond	18382	4745	Clyde.	5316	1915	David Vansickle	Havelock	F. 1918	1*
Dunure Special	18934	5568	Clyde.	6191	1916	John Lonergan	Indian River	F. 1919	1
Drumbeg Chieftain (imp.)	12622	324	Clyde	180	1909	John Lonergan	Indian River	F. 1916	1
Gay Baron Boy	20339	5088	Clyde.	5643	1914	T. J. McConnell	Indian River	F. 1919	1
Prince of Wales of Manchester	4620	1698	Clyde.	179	1902	Alex. Nesbitt & Son	Indian River	F. 1912	2
Sir Simon	20631	5528	Clyde.	6203	1917	Elmhirst & Renwick	Keene	F. 1919	1
Javert	8598	5307	Per.	5931	1915	William Kempt	Keene	S. 1919	1*
Fred Potter	9224	5677	Per	6326	1918	Herbert J. Miller	Keene	S. 1920	1
Christopher North	638	5112	Hack.	5618	1903	Herbert J. Miller	Keene	S. 1918	1
Duke of Teck	18975	5036	Clyde.	5572	1913	Stephen Harrison	Lakefield (R.R. 1)	F. 1919	1
Sir Everard of Birdsall	19558	5208	Clyde.	5695	1916	J. Elmhirst & W. Renwick	Lang	F. 1919	1
Baron MacQueen	6624	1907	Clyde.	2309	1905	Wellington Burgess	Norwood	S, 1915	1
Journalier (imp.)	2330	331	Per.	219	1909	Frank H. Burke, 165 Charlotte St.	Peterboro	S. 1917	A1
Geulin (imp.)	932	3177	Per.	250	1906	James Collins	Peterboro (R.R. 9)	S. 1915	1
Baron Murray (imp.)	13821	1489	Clyde.	1146	1910	W. J. Cox, 183 Lock St.	Peterboro	S. 1917	1
Scotland's Knight	13940	3691	Clyde.	4077	1912	Richard Doris	Peterboro (R.R. 8)	S. 1919	1
Gartly Challenger (imp.)	5405	1424	Clyde.	1749	1902	Lewis & Clarence Ferguson	Peterboro (R.R. 2)	S. 1915	1
Marquis	3640	2552	Per.	3185	1910	James Killen	Peterboro	F. 1918	1
Abbot of Riverside	21637	5650	Clyde.	6101	1917	Sandy Matchett	Peterboro (R.R. 11)	F. 1919	1
Koumis (imp.)	3850	2874	Per.	3386	1910	R. H. Nesbitt	Peterboro (R.R. 4)	S. 1918	1
Lorin 2nd	4347	4354	Per.	4825	1913	W. A. Roseborough	Peterboro (R.R. 4)	F. 1919	1
Fernhall	2315	3900	St. Br.	4410	1909	F. L. Robinson	Peterboro	S. 1917	2
McNair 2nd	21618	3794	Clyde.	4351	1902	Michael Sullivan	Peterboro (R.R. 8)	S. 1915	1
Baron Prince	21498	5411	Clyde.	6032	1916	William Whittington	Peterboro (R R..3)	S. 1919	1*

PRESCOTT COUNTY

General Cord	2017	4521	St. Br.	5005	1909	Joseph Houle	Alfred	S. 1916	1
Juvenil (imp.)	3055	5076	Per.	5588	1909	Napoleon Lemieux	Alfred	F. 1918	A1
Tam Baron	10422	1075	Clyde.	326	1909	W. E. N. Byeres & Sons	Hawkesbury	S. 1919	1
Union Parole	1216	4854	St. Br.	5216	1905	Adelard Chevrier	Hawkesbury, Box 39	F. 1916	1
The Governor	2477	5605	St. Br.	6290	1909	J. Stuart Fraser	Hawkesbury (R.R. 2)	S. 1920	1
Duc (imp.)	646	3420	Bel. Dr.	3871	1911	Fred Vinette	Lefaivre	S. 1920	1
Brigand	739	2516	Fr. Can.	2402	1902	James A. Harrigan	Lemieux	S. 1913	1

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PRESCOTT COUNTY—*Continued.*

Name of Stallion	Can. Rec. No.	Enrol- ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
MacLeod	7213	3243	Clyde.	3516	1905	Joseph Lanthier	L'Orignal	F. 1914	1
Lord Gregor (imp.)	11433	1802	Clyde.	2478	1908	Benjamin Cavalier	Plantagenet	F. 1916	1
Korndyke	5621	5406	Per.	6026	1915	L. & H. Hughes	Plantagenet	S. 1919	2*
Mikado (imp.)	12926	1322	Clyde.	1866	1908	G. A. Ryan	Riceville	S. 1915	1
Major Dick	20777	5475	Clyde.	6049	1916	Victor Bellair	St. Anne de Prescott	S. 1919	1*
Lord Allen	4497	2399	Clyde.	3112	1904	John D. McCallum	Vankleek Hill	F. 1914	1

PRINCE EDWARD COUNTY

Name of Stallion	Can. Rec. No.	Enrol- ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Highlander Chief	15758	4578	Clyde.	4989	1913	M. E Wood	Ameliasburg	F. 1919	1
Jamour (imp.)	3058	3006	Per.	3327	1909	Herbert Parry	Bloomfield	S. 1916	1
Jouan (imp.)	2139	653	Per.	780	1909	Grant Thompson	Bloomfield	F. 1916	1
Glenco	5535	4754	Per.	5204	1914	M. Grant Thompson	Bloomfield	F. 1918	1*
Kinellar Prince (imp.)	13929	1288	Clyde.	1995	1910	Horace Alyea	Consecon (R.R. 1)	S. 1919	1
Jasper	4306	4277	Per.	4714	1913	W. W. Carter	Consecon	F. 1918	1*
Won't Dance	1669	3796	St, Br.	4355	1909	Edward Allan	Picton	F. 1918	A1
Kroupier (imp.)	3037	431	Per.	805	1910	G. Edward Boulter	Picton	F. 1918	1
Vidocq	6523	5250	Per.	5816	1916	G. Edward Boulter	Picton	F. 1918	1*
Archie K. Pointer	0102	3785	St, Br.	4292	1904	S. A. Cole	Picton (R.R. 3)	S. 1915	1
Grey Squirrel	1459	150	Per.	769	1909	John W. Hill	Picton	F. 1916	1
Nigby Boy	8285	5287	Per.	5868	1915	Ed. McCaw	Picton	F. 1918	A1*
Acme Yet	10381	554	Clyde.	565	1910	Geo. Robinson	Rossmore	S. 1917	1
Koursier (imp.)	4007	4511	Per.	3988	1910	J. H. Davidson	Wellington	F. 1918	1

RENFREW COUNTY.

Name of Stallion	Can. Rec. No.	Enrol- ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Grand Opera	2388	4825	St. Br.	1206	1908	John Brennan	Arnprior	F. 1916	1
Imperial George	14406	511	Clyde.	1436	1911	George Parker	Arnprior	F. 1918	1
Impudique	5577	5220	Per.	5817	1916	Angus Cameron	Arnprior	F. 1918	1*
Gauddette	4584	4728	Per.	5210	1914	J. D. Cameron	Arnprior (R.R. 2)	F. 1918	1*
Ashland J.	161	1074	St. Br.	342	1901	W. G. Tompkins	Arnprior	F. 1914	1
Burnbrae Chieftain	20089	5629	Clyde.	6255	1916	John J. Coulas	Barry's Bay	S. 1920	1
Acme Again	20091	5228	Clyde.	5832	1915	John J. Coulas	Barry's Bay	F. 1918	1*
Vivacity 2nd	13015	436	Clyde.	839	1911	A. E. White	Barry's Bay	F. 1918	1
Bill MacNab	18883	5294	Clyde.	5942	1916	Albert Watchorn	Beachburg	S. 1919	1*

Lorelle	9867	5603	Per.	6268	1916	W. H. Lyttle	Beachburg	S. 1920	1
Sulphur Spring	11406	510	Clyde.	1435	1910	William T. Cassidy	Beachburg	F. 1917	1
Baron's Kid	9742	5131	Clyde.	5645	1908	Leonard E. Messereau	Chalk River	S. 1918	2
Great Onward	1400	3824	St. Br.	4364	1908	W. D. Tuffy	Cobden, Box 110	S. 1915	1
Lord Connaught	17221	5302	Clyde.	5878	1915	Patrick & Con. Durack	Cobden	S. 1919	1*
Ocean Du Blocus (imp.)	657	4609	Bel. Dr.	4901	1911	Malcolm McLaren	Cobden (R.R. 1)	F. 1919	1
Prince Herminius	20679	5529	Clyde.	6150	1917	Alex. Hawthorne	Cobden (R.R. 1)	F. 1919	A1
Corbeau Des Landes	1619	5367	Fr. Can.	5835	1914	John Neville	Douglas	S. 1919	1*
Lord Dunmore	1959	1404	Per.	47	1908	Chas. Virgin	Douglas	F. 1916	1
Jasper (imp.)	2327	3620	Per.	3046	1909	James Martin	Eganville	F. 1916	1
Lord Rock	15780	5376	Clyde.	5994	1913	Foster Brothers	Hyndford (R.R. 1)	S. 1919	1*
Tanic Barr	14405	2879	Clyde.	3447	1912	Foster Brothers	Hyndford (R.R. 1)	S. 1919	1
Stonewall	13397	3295	Clyde.	3778	1909	Foster Brothers	Hyndford (R.R. 1)	S. 1918	1
Roy MacGregor	7186	5416	Per.	5989	1917	John P. O'Grady	Killaloe Sta.	S. 1919	1*
Royal Elegance	503	542	Hack.	1550	1907	William Lisk	Killaloe Sta.	F. 1914	1
Oceanic (imp.)	16672	4051	Clyde.	4558	1910	William Verch	Killaloe Sta.	F. 1918	1
Hudson	1519	1624	Per.	101	1907	Thos. Dunnigan	Killaloe	S. 1915	1
Joe Berry	076	4046	St. Br.	4159	1913	Remi Fortier	Pembroke	F. 1918	1*
Lord Douglas	12434	309	Clyde.	45	1910	William Graham	Pembroke (R.R. 4)	S. 1919	2
Royal Loma	15291	3666	Clyde.	4126	1912	Dan Frivalt	Pembroke	F. 1918	1*
Black Oreb	1449	5315	Shire.	5953	1916	Robert Strutt	Pembroke	S. 1919	A1*
Brilliant	8924	5404	Per.	6006	1916	George Mankie	Renfrew (R.R. 3)	S. 1919	1*
Orkindee	1656	4319	St. Br.	4929	1914	M. J. O'Brien	Renfrew	F. 1919	A1
Nard (imp.)	6382	4936	Per.	5444	1913	Robert Graham	Renfrew	F. 1918	A1*
Mahratta (imp.)	13374	1450	Clyde.	2218	1907	Robert Graham	Renfrew	F. 1914	1
Hillsdale Performer	838	4813	Hack.	5330	1915	Robert Graham	Renfrew	F. 1918	1*
Hasli (imp.)	1560	452	Per.	1096	1907	John Mayhew & Co.	Renfrew	F. 1914	1
Talbot of Bellback	12228	3348	Clyde.	3697	1910	Maurice Culhane	Renfrew	S. 1918	1

RUSSELL COUNTY

Rosebank's Fashion	9637	3142	Clyde.	3564	1909	W. E. Lowe	Bear Brook	F. 1916	1
Baron of Russell	18024	4810	Clyde.	5299	1914	Norman F. Wilson	Cumberland	S. 1920	1
Navan Knight	19327	5403	Clyde.	6046	1916	W. R. Burch	Cumberland	S. 1919	1*
Hercule	1105	5604	Fr. Can.	6278	1907	Arthur Maisonneuve	Embrun	S. 1920	1
Roscol	3477	4584	Per.	5008	1906	John B. Robinson	Leonard	S. 1916	1
Ernest De Cap Rouge	1716	5687	Fr. Can.	6320	1917	Alfred Chartrand	Navan	S. 1920	1
Dunshinnoch	19478	5259	Clyde.	5898	1916	N. S. Rothwell	Navan (R.R. 2)	S. 1919	1*
Joubert (imp.)	693	3379	Bel. Dr.	3848	1911	Jos. Lefebvre	Orleans	F. 1918	2

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RUSSELL COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Golden Crown (imp.)	10656	1463	Clyde.	2127	1905	William Meharey	Russell	F. 1917	A1
Baron Clifty (imp.)	17266	4351	Clyde.	4813	1913	William Meharey	Russell	F. 1919	A1
Golden Prince	20550	5652	Clyde.	6178	1917	W. A. Morrow	Russell	F. 1919	1
Prince Patrick	9353	1491	Clyde.	1430	1906	Howard Wilson	Russell	F. 1914	1
Casino (imp.)	257	1062	Per.	831	1903	Donald Campbell	Russell	F. 1912	1
Commander	7562	5304	Per.	5927	1917	James S. Fader	Russell	S. 1919	1*
Koquelin (imp.)	4460	3771	Per.	4083	1910	T. E. Herrington	Russell (R.R. 2)	F. 1917	1
Russell Champion	13474	2839	Clyde.	3347	1909	Robert L. Eadie	Russell (R.R. 2)	F. 1918	1
Lord Howick (imp.)	9692	1303	Clyde.	1949	1907	Joseph Ouimet	St. Albert	F. 1914	1
Gold Heels	1607	3825	St. Br.	4416	1913	Fred W. Melvin	Vars	F. 1918	A1*

SIMCOE COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Royal Gift	19940	5659	Clyde.	6339	1917	Wellington Henderson	Alliston, Box 30	S. 1920	1
Jeannin (imp.)	3074	3248	Per.	3741	1909	William Thompson	Alliston (R.R. 2)	S. 1919	A1
Surprise	19480	5384	Clyde.	6031	1916	W. T. Dunn	Alliston (R.R. 2)	S. 1919	1*
Baron Rowena (imp.)	4469	596	Clyde.	287	1903	Robert Stephenson	Alliston, Box 41	F. 1917	A1
Royal Mac C.	19963	5365	Clyde.	5995	1916	Simon McIntosh	Angus	S. 1919	2*
Marshal Rosador (imp.)	590	4283	Hack.	4264	1909	Wm. Graham & Brother, 30 MacDonald St.	Barrie	F. 1916	2
Lord Thomas (imp.)	11487	378	Clyde.	539	1908	Percy Semple	Beeton	F. 1916	1
Duke of Bondhead	14656	2178	Clyde.	2789	1910	John Barron	Beeton	S. 1917	2
Duke of Montrose (imp.)	9561	1374	Clyde.	2302	1907	Frank Saint	Bradford	F. 1914	1
Royal Baron	4722	3870	Clyde.	4250	1900	Frank Saint	Bradford	F. 1914	1
Celtic Baron MacQueen	15918	4581	Clyde.	4972	1913	W. J. Faris	Bradford (R.R. 3)	F. 1919	1
Konsecutif 2nd	9701	5501	Per.	6109	1915	James Doyle	Coldwater	F. 1919	1
Pearl Finder Junior	18946	4858	Clyde.	5391	1914	Henry Leadley	Cookstown	F. 1918	1*
Pearl Finder (imp.)	4557	1008	Clyde.	716	1902	R. H. Leadley	Cookstown	F. 1914	1
Karton (imp.)	3070	2312	Per.	2840	1910	Andrew Bowman	Craigvale	F. 1918	1
Gartly Recruit	17361	4820	Clyde.	5400	1915	Isaac L. Aikins	Creemore (R.R. 2)	F. 1918	1*
Huron's Hiawatha	12947	4022	Clyde.	4322	1911	John W. Manarey	Duntroon	S. 1919	1
Duc De Maxwelton	4248	4987	Per.	5290	1913	Hazel Edwards	Elmvale	F. 1918	1*
Solway King (imp.)	11233	1901	Clyde.	2465	1908	Hazel Edwards	Elmvale	S. 1918	1
Upperton Prince (imp.)	11484	794	Clyde.	1791	1906	Charles Grigg	Elmvale	F. 1914	1
Buchlyvie Mac	18386	5063	Clyde.	5542	1915	W. L. Ritchie	Elmvale	F. 1919	1

Intellect	8830	5371	Per.	5925	1914	A. R. Murphy	Everett	S. 1919	A1*
Major Guedo	6492	5449	Per.	6069	1917	A. R. Murphy	Everett (R.R. 3)	S. 1919	1*
Barb	8831	5370	Per.	5914	1912	A. R. Murphy	Everett	S. 1919	1
Everett Chief	19157	5258	Clyde.	5838	1916	James Rusk	Everett (R.R. 1)	F. 1918	1*
Montave Richards	17024	4422	Clyde.	4751	1914	James Rusk	Everett	F. 1918	1*
Sir Douglas Haig	20380	5540	Clyde.	6172	1917	James Rusk	Everett	F. 1919	1
Golden Gloss	14444	3369	Clyde.	3803	1911	Alfred Tiers	Fenelon Falls	F. 1918	1
King of Diamonds (imp.)	12486	217	Clyde.	1201	1909	Fizgerald Brothers	Hillsdale	F. 1916	2
Member Sphinx	987	1807	St. Br.	1928	1900	Fizgerald Brothers	Hillsdale	S. 1913	1
Simcoe King	17761	4831	Clyde.	5297	1915	Fred Richardson	Fergusonvale	F. 1918	1*
Pianiste (imp.)	3941	1821	Per.	1155	1902	Thomas Blain	Gilford	F. 1912	1
Liebniz (imp.)	3922	3031	Per.	3364	1911	Edward Maurice	Lafontaine	S. 1919	2
Joigny (imp.)	2340	93	Per.	695	1909	Walter Lawson	Lawson	F. 1916	1
Prince Thomas	9322	1629	Clyde.	2426	1907	Chas. Northgraves	Lefroy	F. 1914	1
Pitcraigie Standard (imp.)	12509	875	Clyde.	1654	1909	Robert Boyes	Lefroy	S. 1916	1
Leicester (imp.)	3921	3448	Per.	3816	1911	Peter Skelley	Loretto (R.R. 2)	F. 1918	1
Harry Lee	2717	5217	St. Br.	5693	1912	Manley Chew	Midland	S. 1920	1
National	5732	3651	Clyde.	386	1905	A. G. Chew	Midland	F. 1914	1
Prince Arundle	608	326	St. Br.	196	1903	A. G. Chew	Midland	F. 1912	1
Jess Willard	5124	5019	Per.	5538	1915	Jos. Chappell	Minesing	F. 1919	A1
Duke of Auchgoyle	17160	5176	Clyde.	5653	1915	Thomas McFarlane	Mt. Stephen	S. 1920	1
Kamichi (imp.)	3065	2145	Per.	2673	1910	Eddie & Handy	New Lowell	F. 1917	2
Joffre	9326	5473	Per.	6027	1916	Joseph Swalm	Nottawa	F. 1919	1
Corinthian (imp.)	13824	2719	Clyde.	1147	1910	Kelly & Gaughan	Orillia, Box 216	S. 1919	1
Parapluie	4837	5281	Per.	5507	1915	A. E. Calverley	Orillia (R.R. 4)	F. 1918	1*
Baron MacGregor 2nd	11627	833	Clyde.	1709	1910	Joseph Nugent	Orillia (R.R. 2)	F. 1918	1
Wildbrino Chief	1292	4244	St. Br.	2920	1899	William Ainsworth	Orillia	F. 1914	1
Heart of Oak	1318	2887	Shire.	3379	1911	Geo. Langstaff	Orillia, Box 179	F. 1919	1
Hillside Kinnaird	19923	5634	Clyde.	6131	1917	H. I. Barnhardt	Oro Station	F. 1919	1
Lenior (imp.)	4443	3714	Per.	4244	1911	J. M. Barnhardt	Oro Station	F. 1918	A1
Baron Mac	12070	313	Clyde.	81	1909	Samuel Kissock	Oro Station	F. 1916	1
Clarion (imp.)	15146	2922	Clyde.	3437	1910	Charles Wice	Painswick	F. 1919	A1
Mountain Dee	0167	5481	St. Br.	6086	1910	Albert Dubeau	Penetanguishene	S. 1919	2
Solway Mac	21346	5373	Clyde.	5963	1915	W. A. Luck	Shanty Bay	S. 1919	1*
Star of Roses (imp.)	3614	1101	Clyde.	1673	1899	Alex. Graham	Shanty Bay (R.R. 1)	F. 1914	1
Institut	1336	688	Per.	115	1908	Albert Lynn	Stayner	F. 1916	1
High Honor (imp.)	15178	3154	Clyde.	3683	1908	Robert Armstrong	Stayner (R.R. 1)	F. 1916	1
Celtic Laird (imp.)	5413	1337	Clyde.	1674	1903	Rogers Brothers	Stayner (R.R. 2)	F. 1914	1
Felicity (imp.)	11490	1696	Clyde.	1658	1908	Neil Bell	Stayner	S. 1915	1
Lachlan Donald	20010	5428	Clyde.	5511	1915	Neil Bell	Stayner	F. 1919	1

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SIMCOE COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Kilwinning Jock (imp. in dam)	16945	4565	Clyde.	5047	1914	Angus Buie	Stayner, Box 182	F. 1918	1*
Lord Archie (imp.)	13284	558	Clyde.	144	1908	Christopher Thomson	Stayner	F. 1917	A1
Barglass 2nd	17072	4688	Clyde.	5051	1914	Herbert J. Hopkins	Sturgeon Bay	F. 1918	1*
King Grant	18747	4615	Clyde.	4841	1913	William Sharpe	Thornton	S. 1920	1
Lawford Forest King	881	1947	Shire.	159	1908	Thomas Readman	Thornton	S. 1917	1
Simcoe King	15902	3414	Clyde.	3834	1911	John Semple	Tottenham	F. 1918	1
Prince Carling	22539	2498	Clyde.	3202	1908	James Walsh	Tottenham	S. 1920	1
Gold Dust Chief	19065	5094	Clyde.	5606	1913	Wm. McWatters	Vasey	F. 1919	1
Montrave Rouser (imp.)	12114	692	Clyde.	894	1907	Alfred Jones	Vasey	F. 1914	1

STORMONT COUNTY.

Black Beauty of Lachute	564	5476	Hack.	6056	1909	Stewart McRae	Aultsville	S. 1919	1
Bladnoch's Heir	10323	751	Clyde.	788	1907	Geo. & Dan McRae	Avonmore	S. 1916	1
Highland Glen	20318	5545	Clyde.	6179	1917	William Crowe	Cannamore	S. 1919	1*
Royal Marquis	12063	375	Clyde.	516	1908	W. G. & G. M. Brown	Cornwall (R.R. 2)	F. 1916	1
Count of Cornwall	4516	4468	Per.	4739	1913	Walter Wood	Cornwall	F. 1919	2
Grand Baron Wallace	18334	5192	Clyde.	5630	1916	David Wilson	Cornwall	F. 1919	1
Watlington Squire (imp.)	686	1940	Hack.	608	1904	Jno. A. McDonald	Cornwall	F. 1912	1
Kirkland Chief (imp.)	12207	4938	Clyde.	5442	1908	Nelson McRae	Moose Creek	S. 1917	1
Bellboleer	401	1701	St. Br.	2539	1909	Sam Gallinger	Moulinette	F. 1916	1
Hantan (imp.)	1521	429	Per.	796	1907	John Joynt	Newington	F. 1914	1
Jasper (imp.)	7972	929	Clyde.	854	1905	William McCool	Northfield Sta. (R.R. 2)	F. 1914	2
Frisky Hal	032	2975	St. Br.	2193	1910	J. W. Connors	Wales	S. 1918	1

VICTORIA COUNTY.

Royal Gallant	19226	4956	Clyde.	5411	1914	Dunn Brothers	Bobcaygeon	S. 1919	1*
Igne (imp.)	2264	526	Per.	229	1908	Alfred Humphries	Bobcaygeon	S. 1917	1
Prince Pride (imp.)	16209	4503	Clyde.	4378	1913	S. J. McKinnon	Cambray	F. 1919	2
Prince George	21541	5423	Clyde.	6009	1916	John Fisk	Cameron (R.R. 1)	S. 1919	1*
Royal Majestic	20694	5700	Clyde.	6347	1917	J. H. Stroud	Cameron	S. 1920	1
Phil (imp.)	16366	4832	Clyde.	5309	1912	M. McPhaden	Cresswell	S. 1919	A1
Jacob (imp.)	3754	2803	Per.	3328	1909	John L. Davis	Dongola	S. 1916	1

Silver Ben	17353	4814	Clyde.	5357	1914	Edward Costello	Downeyville	S. 1919	1*
Pioneer Captain	19117	5113	Clyde.	5648	1915	William R. Kelly	Fenelon Falls	F. 1919	2
Lawrence Archer	2584	2754	Clyde.	224	1899	William R. Kelly	Fenelon Falls	F. 1912	1
Gallant Archer	22225	5522	Cylde.	6194	1917	J. H. & M. W. Brandon	Fenelon Falls	F. 1919	1
The Favourite Knight	6014	4	Clyde.	1314	1903	A. J. Southern	Head Lake	F. 1914	1
Sure Security	15571	4398	Clyde.	4865	1913	Thomas Black	Kirkfield (R.R. 2)	F. 1919	A1
Kirkbeam	22331	5674	Clyde.	6196	1918	Howard DeGeer	Kirkfield	F. 1919	1
Arthur's Seat (imp.)	12029	338	Clyde.	254	1908	Joseph M. McKenzie	Kirkfield	S. 1916	1
Antevolo Rysdyk	51	1525	St. Br.	2103	1910	John Balance	Lindsay	F. 1918	1
Sir Leonard (imp.)	12108	532	Clyde.	947	1908	John Brock	Lindsay	F. 1916	1
Clenathan	2792	5559	St. Br.	6182	1912	T. Hodgson	Lindsay	F. 1919	2
Black Beauty	8670	5320	Per.	5961	1916	James Goslin	Lindsay	S. 1920	A1
Prince of Mertoun (imp.)	9591	364	Clyde.	432	1907	Frank King	Lindsay	F. 1914	1
Borrow Moss (imp.)	228	3539	Hack.	256	1898	Orin Parkin & Alex. Millage	Lindsay	F. 1912	1
Invincible Chattan	17952	4773	Clyde.	5389	1913	George Pogue	Lindsay (R.R. 4)	S. 1919	1*
King of Knights	18847	5364	Clyde.	5795	1916	Thos. H. Waldon	Lindsay	F. 1918	1*
Prince Gartly	10284	581	Clyde.	248	1909	Thos. H. Waldon	Lindsay	F. 1916	1
Prince Gartly Pride	19236	5363	Clyde.	5794	1916	Thos. H. Waldon	Lindsay	F. 1918	1*
Rufus Darnley	17696	4525	Clyde.	4854	1913	Jackson Brothers	Little Britain	F. 1919	1
Rosebank Pacific	17476	5038	Clyde.	5585	1915	Henry Glendenning & Son	Manilla	S. 1920	1
Sterling Silver	16784	3923	Clyde.	4466	1913	William Gunn	Norland	F. 1918	1*
Jerry J.	0101	4419	St. Br.	4926	1913	William Gunn	Norland	F. 1919	1
Sir Gregor (imp.)	14756	1345	Clyde.	727	105	Samuel Fee	Omemee (R.R. 1)	F. 1914	1
Royal Jester (imp.)	6962	544	Clyde.	431	1904	William Kearns	Omemee (R.R. 1)	F. 1912	1
Duke Royal	16694	4747	Clyde.	6231	1914	Geo. A. McQuade	Omemee	F. 1918	2*
Hygrade	19118	5111	Clyde.	5617	1916	Joseph Hicks	Victoria Road	F. 1919	1
Pride of The Glen	20709	5243	Clyde.	5791	1916	J. C. McFadyen & Son	Woodville (R.R. 3)	F. 1918	1*
Lord Lorne	21269	5678	Clyde.	6338	1917	Andrew McKay	Woodville	S. 1920	1
Atlantic	17573	4712	Clyde.	5105	1914	Peter Morrison	Woodville (R.R. 5)	F. 1918	1*

WATERLOO COUNTY.

Ali	1753	2388	Gr. Ch.	526	1905	Simon Halter	Breslau	F. 1914	1
Invetere (imp.)	2367	1073	Per.	348	1908	Geo. H. Schell	Breslau	S. 1915	1
Baron Alton (imp.)	15295	3118	Clyde.	3622	1911	Leander Good	Elmira	F. 1919	A1
Prince of Avon	3962	2529	Clyde.	1759	1902	Daniel Martin	Elmira	F. 1914	1
Commodore A.	212	2466	St. Br.	2711	1909	J. W. Miller	Elmira	S. 1917	1
Lord Macellus (imp.)	15479	2956	Clyde.	3487	1910	J. W. Miller	Elmira	F. 1917	1
Gold Dust	11820	1648	Clyde.	2339	1910	J. H. Bolender	Elmira	S. 1917	1
Coatswood	822	627	St. Br.	749	1905	David W. Reist	Floradale	F. 1914	2

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WATERLOO COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Kentucky Todd	1533	5074	St. Br.	5571	1904	Cruickston Stock Farm	Galt	S. 1918	1
Baron Acme	5748	2103	Clyde.	2907	1904	Geo. B. Ford	Galt (R.R. 1)	F. 1914	1
Moncrieffe Prince	13575	2637	Clyde.	2928	1910	Geo. B. Ford	Galt (R.R. 1)	F. 1917	1
Battle	1826	4885	St. Br.	5431	1908	Miss K. L. Wilkes	Galt	S. 1917	1
Jim Todd	160	3564	St. Br.	3953	1907	Miss K. L. Wilkes	Galt	F. 1914	1
Swinburne (imp.)	15171	3066	Clyde.	3433	1909	George Forwell	Hawkesville	S. 1916	1
Kitchener Again	20949	5640	Clyde.	6313	1917	John Gildner	Kitchener	S. 1920	1
Honest Lad	7999	5531	Per.	6135	1918	Titus S. Shantz	Kitchener (R.R. 3)	F. 1919	1
Diamond	9058	5510	Per.	6119	1909	Titus Shantz	Kitchener	F. 1919	1
Mais (imp.)	6056	4761	Per.	5323	1912	Titus S. Shantz	Kitchener	F. 1918	1*
Beith Prince (imp.)	13757	3723	Clyde.	1230	1910	John & Jos. Eisenmenger	Linwood	F. 1918	1
Knight of Fairview	14155	2473	Clyde.	2742	1910	John & Jos. Eisenmenger	Linwood	F. 1918	1
Athol King (imp.)	9178	140	Clyde.	713	1907	Alfred & James Hewitt	Linwood	S. 1919	A1
Main General	860	3341	St. Br.	3810	1910	John T. Petch	Linwood	S. 1919	1
Lord Myrton (imp.)	14300	852	Clyde.	1748	1910	John T. Petch	Linwood	F. 1918	1
Lord Glamis	12593	2661	Clyde.	2016	1909	John Schneider	Linwood (R.R. 1)	F. 1916	2
Roy Charming	11892	4101	Clyde.	4550	1910	Jacob H. Bender	New Hamburg (R.R. 2)	S. 1919	1
Sturdy Marcellus	17910	5056	Clyde.	5609	1915	John G. Dahmer	New Hamburg (R.R. 3)	F. 1919	1
Ethel's Medio	1055	3366	St. Br.	2880	1902	Jacob Hoffman	New Hamburg	S. 1915	1
Casino	961	1071	Per.	354	1906	Jacob Steinmann & Son	New Hamburg	F. 1914	1
Peace Maker	3376	3120	Per.	3643	1912	Jacob Steinmann & Son	New Hamburg	S. 1919	1
Jouir (imp.)	2921	1072	Per.	353	1909	Jacob Steinmann & Son	New Hamburg	F. 1916	2
Matchless (imp.)	8912	454	Clyde.	1355	1906	Wesley Battler	Plattsville (R.R. 1)	S. 1914	1
Favourite's Heir (imp.)	4545	322	Clyde.	152	1901	Jacob S. Meyer	St. Clements	F. 1912	1
Fyvie Pearl (imp.)	18263	4959	Clyde.	5372	1914	Jacob S. Meyer	St. Clements	F. 1919	A1
King Scott	14502	2740	Clyde.	124	1908	Adam Scheffner	St. Clements	F. 1916	1
Grey Hawk	272	1164	Per.	1509	1900	Nathaniel Martin	St. Jacobs	S. 1913	1
Best Beau	2375	2620	St. Br.	2518	1905	John R. Kaufmann	Waterloo	F. 1914	1
MacQueen of Wellesley	9412	1438	Clyde.	2276	1906	Levi L. Martin	Waterloo (R.R. 3)	F. 1914	1
Income (imp.)	231	4630	Hack.	2675	1901	Jos. W. Snyder	Waterloo	F. 1914	1
The MacQueen	13833	1439	Clyde.	2275	1910	Adam Heipel	Wellesley	S. 1919	1
Scottish Baron (imp.)	4245	2779	Clyde.	2715	1901	D. W. Seyler	Wellesley (R.R. 1)	F. 1914	1

WELLAND COUNTY.

Javalon	5497	5419	Per.	6025	1915	R. E. Kells	Fenwick	S. 1919	2
Prince Keir	12211	2668	Clyde.	3265	1910	F. B. Cooke	Fonthill (R.R. 1)	S. 1917	1
Galihier (imp.)	2203	2045	Per.	1524	1906	William John Kadwell	Marshville (R.R. 1)	F. 1914	1
Tuttlebrook Boy	1427	5399	Shire.	6034	1916	R. B. Swayze	Marshville (R.R. 1)	F. 1918	1*
Lord Direct	020	1344	St. Br.	814	1901	J. A. Coan	Niagara Falls	F. 1914	1
Seeaway	1088	5648	Thor.	6324	1915	T. B. Tough	Niagara Falls	S. 1920	2
Clarion De Queuemont (imp.)	317	479	Bel. Dr.	731	1908	Frank M. Sherk	Ridgeway	F. 1916	1
Brigadier General	2235	4768	St. Br.	5345	1912	Robert Bradley	Thorold, Box 1110	S. 1919	2
Prince Alcyoner	1861	4534	St. Br.	5022	1906	Robert Bradley	Thorold	S. 1916	1
Kaporal (imp.)	3839	3985	Per.	3382	1910	Ella Farr	Welland (R.R. 3)	F. 1917	1
Rex Edward	1063	2486	St. Br.	2637	1901	R. L. Dove	Welland (R.R. 2)	F. 1914	1
Lincoln Chief	17242	5494	Clyde.	6115	1915	R. L. Dove & J. A. Hubbard	Welland	F. 1919	1
Central G.	0103	4529	St. Br.	4976	1902	S. Paonessa	Welland	S. 1916	1

WELLINGTON COUNTY.

Thom's Pride (imp.)	12642	1326	Clyde.	1861	1909	Alex. McDonald & Sons	Alma	F. 1916	1
Baron Wallace (imp.)	11104	1771	Clyde.	2370	1905	A. McDonald & Sons	Alma	F. 1914	1
Bingen Pilot	264	1309	St. Br.	519	1902	Geo. A. McQuibban	Alma	F. 1912	1
Baron Senwick (imp.)	16408	3866	Clyde.	4221	1911	William Smith & Sons	Alma	F. 1919	A1
Prince Orla (imp.)	4493	1886	Clyde.	2093	1900	W. J. Church	Arthur (R.R. 2)	F. 1914	1
Baron Dalmar	20419	5233	Clyde.	5807	1917	Frank Crewson	Arthur	F. 1918	A1*
Lord Dewar (imp.)	13973	2067	Clyde.	2655	1910	Michael Hefferman	Arthur	S. 1919	1
Abdell	1290	2834	St. Br.	1871	1901	Michael Hefferman	Arthur	S. 1915	1
Lynal	2898	2273	St. Br.	536	1899	Andrew Esson	Belwood	F. 1912	1
All in All	11883	1515	Clyde.	535	1908	Cyrus Sargent	Belwood	F. 1916	1
Baron of Riches	22565	5710	Clyde.	6355	1918	Henry Crewson	Belwood	F. 1920	1
Balcraig (imp.)	6496	563	Clyde.	274	1904	Jacob Maurer	Clifford	F. 1912	1
Donald Davie	17950	5108	Clyde.	5586	1915	Philip Oehm	Clifford	F. 1919	1
George's Favourite	14716	3135	Clyde.	3580	1912	Louis Wolfe	Clifford	S. 1919	1
Martin Luther	18016	4955	Clyde.	5169	1915	Talbert Ferguson	Conn (R.R. 1)	S. 1919	1*
Richard Prince	17210	5013	Clyde.	5490	1915	Frederick Sivill	Conn	F. 1919	1
Gallant Murray (imp.)	14583	3008	Clyde.	3363	1910	J. J. Dowling & Son	Drayton	F. 1917	1
Lord Moncrieffe	16363	4082	Clyde.	4619	1911	Hugh Webster	Elora (R.R. 2)	F. 1918	1
Iberene	10433	5673	Per.	6272	1915	Richard Davis	Erin	S. 1920	A1
Jet (imp.)	2138	1516	Per.	2495	1909	Waldie Steen	Erin (R.R. 1)	F. 1916	1
Lovely Baron (imp.)	8452	1606	Clyde.	2494	1907	Waldie Steen	Erin (R.R. 1)	F. 1914	1
Haussmann	2275	3230	Per.	3684	1907	Thos. B. Broadfoot	Fergus	F. 1914	1

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WELLINGTON COUNTY—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Slow Music	1920	4308	St. Br.	4771	1908	A. Groves	Fergus	S. 1916	1
Baron Columbus (imp.)	6106	749	Clyde.	530	1905	R. C. Rogerson	Fergus	F. 1914	1
Orla Laddie	18626	5273	Clyde.	5774	1916	R. C. Rogerson	Fergus	F. 1918	1*
Craigador	19521	5551	Clyde.	6139	1917	G. M. Anderson	Guelph (R.R. 2)	F. 1919	1
Benefactor	15296	3367	Clyde.	3830	1911	James Bowman	Guelph	S. 1920	A1
Spey Pearl	780	5202	Thor.	5728	1913	Canadian National Bureau of Breeding, Montreal. E. B. Clancy, Agent	Guelph	F. 1919	1
Charlie Gilbert	360	1171	Thor.	548	1904	Canadian National Bureau of Breeding, Montreal. E. B. Clancy, Agent	Guelph	F. 1912	A1
Bonnie Boy	21466	5680	Clyde.	6091	1916	Geo. Crane	Guelph (R.R. 6)	S. 1919	1*
Netherlea Heir	18308	4772	Clyde.	5386	1915	Richard Dickieson & Son	Guelph	S. 1920	A1
Rattler	921	5472	Pony	6082	1916	Hastings Brothers	Guelph (R.R. 7)	S. 1919	1*
Elmoore	3610	1978	Per.	2564	1910	H. S. Leslie & Brother	Guelph (R.R. 2)	S. 1919	1
Isodonte	8920	4898	Per.	5338	1913	J. J. McAninch	Guelph	S. 1919	1*
King of Wellington	19633	5318	Clyde.	5947	1916	J. Strome & H. A. Mooney, 68 Kent St.	Guelph	S. 1919	1*
Bonnie Earl (imp.)	15045	3219	Clyde.	3705	1909	Colin Davidson	Harriston (R.R. 3)	S. 1917	1
Lord Lamond (imp.)	11307	1837	Clyde.	1984	1907	Thos. Harrison & Sons	Harriston	F. 1914	1
Loustic (imp.)	2261	2900	Per.	3467	1911	Thos. Harrison & Sons	Harriston	F. 1918	1
Invergowrie	11468	320	Clyde.	110	1907	Donald Wilkinson & John Ritch	Harriston & Drayton	F. 1914	1
Laurie Kitchener	21463	5534	Clyde.	6219	1916	Donald Wilkinson & John Ritch	Harriston & Drayton	S. 1920	A1
Image (imp.)	1659	2387	Per.	2923	1908	Jas. Carmichael & R. Davis	Hillsburg	S. 1917	1
Venscraig (imp.)	16860	4004	Clyde.	4577	1912	D. McKinnon & Sons	Hillsburg	F. 1918	A1
Cyllene (imp.)	13908	1286	Clyde.	1997	1907	Geo. W. Arnold	Mt. Forest	F. 1914	1
St. Boswell (imp.)	4373	1775	Clyde.	2522	1901	Neil A. Brown	Mt. Forest (R.R. 5)	S. 1914	1
Duke John (imp.)	12377	1474	Clyde.	2357	1910	John Gilstorf	Mt. Forest	F. 1918	1
Scotland's Peer (imp.)	7650	2213	Clyde.	913	1905	Colin Ray	Mt. Forest	S. 1915	1
Lord MacQueen	5452	3222	Clyde.	1460	1905	William Fleet	Palmerston	F. 1914	1
Black Boy (imp.)	11780	1578	Clyde.	1657	1908	Stenhen H. Moore	Palmerston	S. 1917	1
Prince of Craigton (imp.)	11482	4003	Clyde.	4487	1909	J. F. Husband	Rockwood	F. 1916	1
Brookfield Laddie	579	1465	Hack.	2205	1906	J. F. Husband	Rockwood (R.R. 3)	F. 1914	1
Right Forward 2nd	20569	5173	Clyde.	5744	1913	Joshua Thompson	Rockwood (R.R. 2)	F. 1919	1
Intro (imp.)	1589	2334	Per.	2994	1908	W. H. Rothwell	Rothsay (R.R. 1)	S. 1916	1

Orla Montrave	19705	5639	Clyde. . . .6132	1917	Fred J. Wilson	Rothsay (R.R. 1)	F. 1919	1
Clark Ronald*	19706	5638	Clyde. . . .6133	1917	Fred J. Wilson	Rothsay (R.R. 1)	F. 1919	1
Montrave Ronald (imp.)	10077	1432	Clyde. . . .2092	1898	Fred J. Wilson	Rothsay (R.R. 1)	F. 1914	1
The Charmer (imp.)	6109	2142	Clyde. . . .2466	1902	Alexander Farr	Wallenstein	F. 1914	1
William of Waterloo	20477	5471	Clyde. . . .6078	1915	Alexander Hahn	Wallenstein	S. 1919	1*

WENTWORTH COUNTY.

Euky	325	2322	St. Br. . . . 512	1909	Hanley & LeBarr	Ancaster	F. 1916	1
Fernand De Cap Rouge	1774	5658	Fr. Can. .6337	1918	C. E. Rymal	Ancaster	S., 1920	1
Majestic Baron (imp.)	13816	1522	Clyde. . . .1157	1905	Joseph Hutty	Binbrooke	F. 1914	1
Dominion Boy	975	1920	St. Br. . . .1728	1899	George Bickell	Dundas	F. 1914	1
Peerless	4816	5084	Per. 5637	1915	A. H. Lyons	Dundas (R.R. 2)	F. 1919	1
Black Diamond	6752	5669	Per. 6341	1917	A. H. Lyons	Dundas	S. 1920	1
Brahmin (imp.)	14087	2304	Clyde. . . .2986	1910	Donald C. Stewart	Dundas	F. 1918	1
Prince Ascot (imp.)	8458	342	Clyde. . . . 279	1906	William Woodley & Sons	Dundas	S. 1915	1
Lord Ryckman	021	2843	St. Br. . . .3414	1910	W. T. Shields	Fruitland (R.R. 1)	F. 1918	1
Infernal (imp.)	1583	1926	Per. 1437	1905	Thos. W. Smith	Glanford Sta. (R.R. 1)	S. 1919	1
Bezant (imp.)	318	5077	Thor. . . .5589	1907	Sir John Hendrie	Hamilton	S. 1918	1
The Star Patchen	040	651	St. Br. . . . 736	1903	W. W. Brigham	Hannon	F. 1914	1
Robert De Marcq (imp.)	816	3433	Bel. Dr. . . 106	1900	I. L. Martin	Hannon (R.R. 1)	F. 1912	2
Mr. Templeton	1010	2139	St. Br. . . .2131	1908	William Martin	Hannon	F. 1916	2
Charming Pride	17916	5214	Clyde. . . .5757	1915	George Brooks	Lynden	S. 1920	1
Oro Ree	1144	2783	St. Br. . . .1291	1901	Francis G. Green	Stoney Creek	F. 1914	1
Oro G.	2592	5492	St. Br. . . .5955	1913	Frank G. Green	Stoney Creek	F. 1919	1
Raith Standard (imp.)	16180	4238	Clyde. . . .4702	1913	James D. Weatherston	Troy	S. 1919	A1*
Gay Ronald	15342	4218	Clyde. . . .4368	1913	G. E. Hildreth	Vinemount	F. 1919	A1
Kanak (imp.)	2836	2918	Per. 3422	1910	Arthur J. Kenyon	Vinemount	S. 1918	1
Ideal King	22483	5681	Clyde. . . .6325	1917	Jas. A. Watt & Son	Vinemount	S. 1920	1

YORK COUNTY.

Dunure Gulf Stream (imp.)	16859	4005	Clyde. . . .4578	1910	Patterson Brothers	Agincourt	F. 1919	A1
Lambton Pride	21697	5643	Clyde. . . .6321	1917	Alex. McMillen	Aurora	S. 1920	1
L'Sir Wilfred Laurier (imp.)	2260	3845	Per. 4348	1911	J. F. Playter	Aurora (R.R. 2)	F. 1918	1
Buchlyvie Baron	19092	4845	Clyde. . . .5419	1914	M. M. Traviss	Aurora, Box 431	F. 1918	1*
Prince Togo (imp.)	8788	717	Clyde. . . .1234	1901	G. H. & D. Whitmore	Aurora	F. 1912	1
Black Benedict (imp.)	3563	2262	Clyde. . . .2730	1900	John Chappelle	Baldwin	S. 1916	1
Pride of Dunedin	17299	5145	Clyde. . . .5707	1915	Edwin Lewis	Cookstown	S. 1920	A1

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YORK COUNTY.—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Solidity (imp.)	18367	4839	Clyde.	5362	1913	D. Howard & J. Eby	Fairbank	F. 1918	A1*
Westlothian (imp.)	6753	1298	Clyde.	1962	1902	H. W. Boynton	Gormley (R.R. 2)	S. 1915	1
Cornton Gay Lad	14753	3022	Clyde.	3588	1910	Robert Carlisle	Gormley (R.R. 1)	F. 1918	1
Chieftain	4583	4488	Per.	4845	1914	Wm. A. Henry & Son	Keswick	F. 1919	A1
Lord Greffier	5679	5270	Per.	5509	1916	Wm. A. Henry & Son	Keswick	F. 1919	1
Lord Keswick	5678	5269	Per.	5508	1916	Wm. A. Henry & Son	Keswick	F. 1919	1
Benedict 2nd	17648	5570	Clyde.	6256	1914	Thomas Mahoney	Keswick	S. 1920	1
Freehold (imp.)	680	755	Hack.	1362	1902	R. W. Dove	Kettleby	S. 1919	1
Bonnie Boy	20506	5437	Clyde.	6024	1917	Jos. Cutting & Sons	Kettleby	S. 1919	1*
Elderslie (imp.)	9329	1306	Clyde.	1946	1907	Richard Harman	King (R.R. 3)	F. 1914	1
Victor Hugo	13464	802	Clyde.	1824	1908	W. J. Wells & Son	King	F. 1916	1
The Principal	859	1813	St. Br.	1308	1901	W. H. O'Dell	Maple	F. 1914	1
Byron Derby	17657	5021	Clyde.	5236	1913	T. B. Weldrick	Maple	F. 1918	1*
Marathon's Best	21899	5635	Clyde.	6202	1917	T. H. Hassard	Markham	F. 1919	1
Royal Review (imp.)	279	722	Hack.	1194	1904	T. H. Hassard	Markham	F. 1912	1
Dapple Boy	8059	5264	Per.	5865	1909	T. H. Hassard	Markham	F. 1918	1
Cairson	19697	5283	Clyde.	5784	1915	T. H. Hassard	Markham	S. 1920	1
Mulet (imp.)	8306	5286	Per.	5866	1912	T. H. Hassard	Markham	F. 1918	1*
Monogram	8304	5288	Per.	5871	1913	T. H. Hassard	Markham	F. 1918	A1*
The Count of Hillcrest	15774	4502	Clyde.	4960	1913	T. H. Hassard	Markham	F. 1919	A1
Hanoi (imp.)	1555	1840	Per.	2272	1907	W. H. Johnson	Markham	F. 1914	1
Captain Bryson	1661	3119	St. Br.	904	1900	H. C. Reesor	Markham	F. 1912	1
Grandee's First	16633	4689	Clyde.	4871	1914	James Torrance	Markham	F. 1918	1*
Baron's Court	18366	4759	Clyde.	5379	1911	James Torrance	Markham	F. 1918	A1
Baron Bobs	21952	5548	Clyde.	6128	1913	James Torrance	Markham	F. 1919	A1
Ever Ready (imp.)	21951	5535	Clyde.	6218	1916	James Torrance	Markham	S. 1920	A1
Shannon Bank Mack	16548	4710	Clyde.	4961	1914	W. H. Tran	Markham	F. 1919	1
Shannon Bank Pride	22397	5572	Clyde.	6197	1918	W. H. Tran	Markham	F. 1919	1
Bonnie Solway (imp.)	15293	2939	Clyde.	3483	1911	W. J. Oldham	Mt. Albert	F. 1918	A1
Ouse Bridge Champion	552	593	Shire.	444	1906	Amos Agar	Nashville	S. 1915	1
Harley (imp.)	3826	2901	Per.	898	1902	Ebenezer Randall	Newmarket (R.R. 3)	F. 1912	1
The Saxon	848	3962	St. Br.	4475	1906	T. Skinner	Newmarket, Box 242	S. 1915	1
Oro Boy	263	3465	St. Br.	514	1908	J. E. Walker	Newmarket	S. 1917	1
Knights Differ	308	4281	Thor.	4776	1909	Jas. C. Fletcher	Newtonbrook	S. 1916	1
Morven Awake	21214	5274	Clyde.	5944	1917	Wm. Robinson	Newtonbrook	S. 1919	1*
Nesbitt MacQueen	14643	782	Clyde.	1498	1906	W. J. Hudgins	Oak Ridges	F. 1914	1
Prince of Orange (imp.)	7848	2184	Clyde.	1212	1905	Charles Stiles	Pefferlaw	S. 1915	1
Bayview Lad	20915	5536	Clyde.	6195	1918	J. A. Boag & Son	Queensville	F. 1919	1

Lord Ullin (imp.)	15191	5558	Clyde. . . 6261	1910	John A. Boag & Son	Queensville	S. 1920	A1
Black Gregor (imp.)	19658	5026	Clyde. . . 5554	1915	John A. Boag & Son	Queensville	F. 1919	A1
Birchburn	16409	3869	Clyde. . . 4220	1912	John A. Boag & Son	Queensville	F. 1918	A1*
Aberdonian (imp.)	21953	5537	Clyde. . . 6225	1917	John A. Boag	Queensville	S. 1920	A1
Ringtime (imp.)	21956	5539	Clyde. . . 6227	1918	John A. Boag	Queensville	S. 1920	A1
Crown (imp.)	21954	5538	Clyde. . . 6226	1918	John A. Boag	Queensville	S. 1920	A1
Lord Morven (imp.)	11457	1349	Clyde. . . 1903	1908	J. B. Cowieson & Sons	Queensville	F. 1919	1
Baron Fullarton	21532	5400	Clyde. . . 6038	1916	J. B. Cowieson & Sons	Queensville	F. 1919	1
Ecureuil (imp.)	746	1150	Per. . . . 1957	1904	William G. Hill	Queensville	F. 1917	A1
Buchez (imp.)	4615	1346	Per. . . . 445	1901	H. Hulse & Chalmer Black	Queensville and Kettleby	F. 1912	1
Kendale	20101	5100	Clyde. . . 5639	1915	F. A. Smith	Queensville	F. 1919	1
Watnall King	1102	3123	Shire. . . 3667	1912	J. B. Clark	Ravenshoe	F. 1918	1*
Gallant Kyle	7959	1632	Clyde. . . 642	1906	Henry Smith	Ravenshoe	F. 1914	1
Lambton Model	21533	5518	Clyde. . . 6199	1918	John Fisher	Ringwood	F. 1919	1
Lambton's Heir	19587	5009	Clyde. . . 5549	1916	John Fisher	Ringwood	F. 1919	1
Lambton (imp.)	15299	2845	Clyde. . . 3400	1911	John Fisher	Ringwood	F. 1918	A1
Admiral of Hillcrest	18356	5369	Clyde. . . 5879	1916	Henry A. Mason	Scarborough	F. 1918	1*
Colonel of Hillcrest	17335	5085	Clyde. . . 5640	1915	Henry A. Mason	Scarborough	F. 1919	1
De Wilton (imp.)	634	3088	Hack. . . 3620	1906	Henry A. Mason	Scarborough	F. 1917	A1
Prince	1634	1517	Per. . . . 2341	1909	F. Vivian	Scarborough Jct.	F. 1916	1
Baron Minto (imp.)	13980	3877	Clyde. . . 4257	1906	Thomas Ellison	Schomberg	F. 1914	A1
Gay Sprig (imp.)	7270	539	Clyde. . . 1495	1904	R. L. Graham	Schomberg	F. 1914	1
Eastwood Todd	2034	4633	St. Br. . . 5045	1907	Frank McNamara	Schomberg	F. 1917	A1
Roy Carruchan	20787	5359	Clyde. . . 5972	1913	Abijah J. Brown	Stouffville	S. 1919	1*
Netherby Hero	15792	3324	Clyde. . . 3804	1912	Robt. H. Spofford	Stouffville (R.R. 1)	F. 1918	1*
Mac Brino	2950	5468	St. Br. . . 6093	1915	Peter Wideman	Stouffville	S. 1919	A1*
Sir Leopold (imp.)	9747	1908	Clyde. . . 2307	1901	Charles Park	Sutton West	F. 1914	1
Sir James of Alton (imp.)	17283	4474	Clyde. . . 4968	1910	Thomas Legge	Temperancevile	F. 1919	A1
Proud Chieftain (imp.)	9684	142	Clyde. . . 735	1906	Cameron & Company	Thistletown	F. 1914	1
Centeur (imp.)	481	4300	Fr. Ch. . . 772	1902	Joseph Frost	Thistletown	S. 1916	1
Nealon	680	3455	Thor. . . 3777	1903	Thorncliffe Stables	Todmorden	S. 1915	1
First Sight	409	3936	Thor. . . 4346	1910	Thorncliffe Stables	Todmorden	S. 1920	1
Calgary	410	4285	Thor. . . 4808	1910	Thorncliffe Stables	Todmorden	F. 1917	1
Chilcoot	1365	5322	St. Br. . . 5496	1912	C. A. Burns, The Repository, Simcoe & Nelson streets	Toronto	F. 1919	1
Burt Axworthy	1845	4286	St. Br. . . 4774	1908	T. A. Crow, Yonge and Isabella streets	Toronto	F. 1919	A1
Warwick Model (imp.)	304	2773	Hack. . . 2407	1902	T. A. Crow	Toronto	F. 1919	A1
Minno	3577	5682	Gr. Ch. . . 6284	1903	Lester M. Davies	Toronto	S. 1920	1

*Horse requires inspection; Owner should look up route of Inspectors and present stallion at his nearest Inspection point at time stated.

YORK COUNTY.—*Continued.*

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert
Graymont	9697	5503	Per.	6111	1916	L. M. Davies	Toronto	F. 1919	A1
Reminder (imp.)	18265	4800	Clyde.	5374	1914	Davies & Robinson, 883 Broadview Avenue	Toronto	S. 1919	A1*
Plaudmore	557	4226	Thor.	4287	1906	Joseph H. Doane, 30 Isabella Street	Toronto	F. 1914	1
Rose Victor (imp.)	12488	212	Clyde.	1202	1909	The Mounce Company, Limited, 336 Parliament Street	Toronto	F. 1917	1
Bartlett	251	3954	St. Br.	4326	1911	James Redcliffe, 11 Alexander Street	Toronto	S. 1919	1
Dunure Captain (imp.)	14126	1299	Clyde.	1961	1910	A. Gormley	Unionville	F. 1918	A1
Dunure Lucky Star	15379	3335	Clyde.	3740	1911	A. Gormley	Unionville	F. 1918	A1
Golden Price	18871	5309	Clyde.	5909	1916	Allen Meyer	Unionville	S. 1919	1*
Jim Euxine	3113	5525	St. Br.	6146	1918	George Arnold	Virginia	F. 1919	2
Muskogee Baron	1759	4536	St. Br.	4811	1908	George Arnold	Virginia	F. 1916	1
Guedo (imp.)	2546	1692	Per.	1897	1906	William Pears	West Toronto	S. 1915	1
Hartington (imp.)	19655	5032	Clyde.	5552	1915	J. M. Gardhouse	Weston	F. 1919	A1
Croton Forest King	1222	4725	Shire.	5207	1915	John Gardhouse & Sons	Weston	F. 1918	A1*
Bonaday	1478	4766	St. Br.	5329	1907	F. J. Hassard	Weston	F. 1919	A1
Port De Dion	1888	5310	Bel. Dr.	5932	1912	David Huson	Woodbridge	S. 1919	1
Dandy	5542	4736	Per.	5205	1914	R. H. Livingston	Woodbridge	F. 1918	A1*
Waxwork Jack	1374	5339	Shire.	5921	1916	Mrs. Margaret Burbidge, 21 Raglan Avenue	Wychwood	S. 1919	1*

NEW ONTARIO.

ALGOMA DISTRICT.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert
Clifton Swell (imp.)	13285	1125	Clyde.	1246	1909	Geo. A. Vanclse	Barrie Island	F. 1916	1
Luis 2nd	3431	2062	Per.	2541	1910	Geo. W. Brydges	Barrie Island	S. 1918	1
Perfect Boy	19123	5706	Clyde.	6092	1916	Wm. Robinson	Bass Creek	S. 1920	1
Winona G.	171	1437	St. Br.	2145	1909	P. J. McAvoy	Bruce Mines	F. 1916	1
Frank	524	4127	Per.	4379	1906	J. J. McPhail	Bruce Mines	S. 1918	A1
Joe Stanton	2461	4668	St. Br.	4852	1905	J. J. Wright	Carterton	S. 1916	1
Henri (imp.)	2246	3829	Per.	4030	1907	Adelard Chenier	Chelmsford	F. 1914	1
Stirling Prince Thomas	17935	5454	Clyde.	5686	1915	W. A. Armstrong	Gore Bay	S. 1919	1*

Lori (imp.)	10150	5704	Per.	6305	1911	John A. McDonald	Iron Bridge	S. 1920	2
Galody (imp.)	10149	5703	Per.	6304	1906	John A. McDonald	Iron Bridge	S. 1920	1
Baron Revolt	17471	4730	Clyde.	5132	1915	Peter McConnell	Kagawong	F. 1918	1*
King Patch 2nd	1520	4651	St. Br.	4857	1913	Wallace McConnell	Kagawong	F. 1919	1
Gnome (imp.)	806	1969	Per.	2600	1906	Khull Brothers	Laird	F. 1914	1
Baron Stirling 2nd	10434	3787	Clyde.	4123	1906	Wm. Hembruff, Box 57	Manitowaning	F. 1914	1
Sylvander's Favourite	15348	5456	Clyde.	6021	1913	W. J. Nott	Richards Landing	S. 1919	A1*
Sphinxmore Jr.	981	3935	St. Br.	852	1902	David H. Law, 83 Glasgow Avenue	Sault Ste Marie	F. 1912	1
Gazon (imp.)	29	3802	Fr. Ch.	4175	1906	George Nott	Sault Ste Marie	F. 1914	1
Dazzle Patch	0134	5161	St. Br.	5743	1909	William O'Brien	Sault Ste Marie	S. 1918	1
The Import	1904	5158	St. Br.	5739	1916	William O'Brien	Sault Ste Marie	S. 1920	2
Cashier Pride	18073	5159	Clyde.	5741	1915	John Wilding	Sault Ste Marie	F. 1919	1
Calgary	1348	5184	St. Br.	5732	1909	A. D. Maitland	Webbwood	S. 1918	1
Hindman's Perfection 2nd	3621	4049	Per.	4295	1911	The Wharncliffe Percheron Horse Company	Wharncliffe	S. 1918	1

HALIBURTON.

Prince of Willowbrook	2285	3196	Per.	3538	1911	Sydney Johnston	Donald	S. 1918	1
Acme Prince 2nd	16735	4452	Clyde.	4769	1913	Lee Roberts	Haliburton	S. 1920	1
Silver Duke	16586	4838	Clyde.	5350	1914	Charles Wood	Minden	F. 1918	1*
Freier	73105	3543	Ger. Ch.	3840	1905	Geo. Barry	West Guildford	S. 1916	1

KENORA.

Khartoum Kitchener	21551	5488	Clyde.	5959	1916	John McKay	Dryden	S. 1919	1*
Scotchman	10776	5707	Clyde.	6090	1908	John Smith	Dryden, Box 31	F. 1919	1

MANITOULIN ISLAND.

Pearl Gift (imp.)	16085	3296	Clyde.	3157	1904	George Strain	Gore Bay	F. 1914	1
Lord Helsington (imp)	9802	928	Clyde.	1190	1905	S. J. Bradley & John Stewart	Manitowaning	F. 1914	1
Baron Knight	14176	1664	Clyde.	2520	1909	Wilmot Blackie	Spring Bay	S. 1918	1

MUSKOKA.

Castelar King	3619	3683	Per.	4130	1910	Fred Morris & Jas. Carson	Bracebridge	S. 1918	1
Black Stamp (imp.)	13149	1253	Clyde.	2021	1910	Leishman & Watson	Bracebridge	S. 1918	1
Beachly Boy	1414	4320	St. Br.	4743	1913	Bert Hunt	Bracebridge	F. 1919	1
Bonnie Prince Charley	9717	1636	Clyde.	464	1909	Wesley Morrow	Muskoka Falls	F. 1916	1
Torrs Black Prince	17729	5010	Clyde.	5505	1915	W. F. Somerset	Port Sydney	S. 1920	1
Bonnie Dee (imp.)	13316	3670	Clyde.	4141	1911	W. F. Somerset	Port Sydney	S. 1918	1
Geneva King	6009	5216	Per.	5764	1916	R. W. Colson	Uffington	F. 1919	2

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NIPISSING.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Handsome Prince	21210	5398	Clyde.	6017	1916	W. Beaulieu	Bigwood	S. 1919	2*
Grimpant	1527	3755	Per.	4107	1906	Edgar Gagne	Field	F. 1914	1
Proud Boy of Todmorden	13881	3291	Clyde.	2913	1910	William Dagg	Hugel	S. 1920	1
Thistle 2nd	16756	5445	Clyde.	6014	1914	John Pastway	Madawaska	S. 1919	1*
Calva	1419	5209	Fr. Can.	5708	1909	Peter Cutts	Markstay	S. 1918	1
Royal Duke	5881	5656	Per.	5893	1916	Charles Thibeault	Mattawa	F. 1918	A1*
Blacksmith Boy	11905	3667	Clyde.	4134	1910	Edward White	Milnet	F. 1917	1
Mac Gordon	13637	3361	Clyde.	3378	1911	Geo. Taillion	Noelville	F. 1919	1
Jouciguy	6750	5455	Per.	5969	1916	Frank Decicco	North Bay	S. 1919	1*
Monteith Baron	17174	5459	Clyde.	6094	1915	Lionel Sequin	St. Charles	S. 1919	1*
Baron McPherson	321	2268	St. Br.	312	1910	T. C. Young	Sudbury	S. 1918	1
Prince Arbroath	14551	3687	Clyde.	4063	1907	Roderick Steep	Verner (R.R. 1)	F. 1914	1
Everard Spark	21715	5542	Clyde.	6161	1916	Pierre Nadeau	Verner	F. 1919	1

PARRY SOUND.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Baron Thomas	9005	2449	Clyde.	3146	1908	Hugh & Joseph Varcoe	Burk's Falls	S. 1916	1
Thomas Atkins	18291	5031	Clyde.	5504	1916	William Marks	Emsdale	F. 1919	1
Lord Hiawatha	14433	3770	Clyde.	4071	1912	J. A. McDonald	Emsdale	S. 1920	1
Norland	8862	52	Clyde.	257	1907	Dan. Gee	Golden Valley	S. 1915	1
Royal Range	14427	1591	Clyde.	2368	1910	John W. Johnston	Midlothian	S. 1919	1
Sir Ben (imp.)	5408	2152	Clyde.	2859	1901	Andrew Thompson	Nobel	F. 1914	1
Lacis (imp.)	3857	3016	Per.	3561	1911	John Woods, Box 544	Parry Sound	S. 1918	1
Viscount Humphrey (imp.)	15292	3255	Clyde.	3721	1910	W. H. Martin	Rosseau	F. 1918	1
Baron Darnley	17902	5095	Clyde.	5607	1915	William Unger	South River	F. 1919	1
Major Cormier	3742	4334	Per.	4733	1913	W. J. Unger	South River	F. 1919	1
Gallant Marcellus	6845	4014	Clyde.	4439	1906	Albert Johnston	Spence	S. 1915	1
Rosseau Pride	18029	5457	Clyde.	6043	1915	Henry J. Stoneman	Turtle Lake	S. 1919	1*

RAINY RIVER.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Landiston	3136	5144	Per.	5656	1910	R. W. MacEachern	Emo	S. 1918	A1
Terrington Cleophas (Imp.)	335	3997	Haek.	4545	1904	W. G. Wilson	Emo	S. 1915	1
Orozeo	6855	3938	Per.	4519	1911	Angus Shaw	Fort Francis	F. 1919	A1
Giles	8733	5694	Per.	6263	1916	H. F. Oster	Stratton	S. 1920	2

TIMISKAMING.

Baron Everard (imp.)	15223	3449	Clyde.	3894	1911	Geo. Tough	Charlton	S. 1918	1
Grey Napoleon	4558	4007	Per.	4408	1912	Thomas J. Brennan	Charlton	F. 1919	1
Lindenwold Warrior (imp.)	1166	3456	Shire.	3901	1908	A. Bailey	Earlton	S. 1915	1
Bruno Brino	2571	2519	St. Br.	3219	1906	G. B. Neavean	Earlton	S. 1915	1
Gambert (imp.)	403	2376	Per	1839	1906	William Gordon	Larocque	F. 1914	1
Prince Imperi	21506	5466	Clyde.	6079	1916	M. J. Guinane	New Liskeard	S. 1919	1*
Royal Kippen (imp.)	3996	3994	Clyde.	4435	1901	M. J. Guinane	New Liskeard	S. 1915	1
Jobard (imp.)	2208	1097	Per.	919	1909	Archie Cameron	New Liskeard	F. 1916	1
Jade (imp.)	2206	1342	Per.	1543	1909	James Foley	New Liskeard	S. 1917	A1
Arion King	986	2324	St. Br.	186	1899	Chas. Chadwick	New Liskeard	F. 1912	1
Geranium (imp.)	9166	4671	Per.	4986	1904	Henry Taylor	Thornloe (R.R. 1)	S. 1916	1

QUEBEC.

Despot (imp.)	10909	656	Clyde.	819	1909	George Fraser	Beech Grove	S. 1917	1
Dominion Boy	20806	5662	Clyde.	5890	1915	D. J. MacDonell	Dalhousie Sta.	S. 1919	1*
Sylvio (imp.)	13905	765	Clyde.	1443	1907	Napoleon LaFrance	Demers Centre	S. 1915	1
Royal Montrose	8517	1657	Clyde.	2562	1905	Howard M. Barber	Gatineau Point	S. 1914	1
Komb (imp.)	4463	5355	Per.	4082	1910	Thos. Canavan	Poltimore	S. 1919	1
Rex	4991	1990	Morg.	2536	1900	R. H. Massie	Quyon	F. 1914	1
Blaiket Blend	15197	3093	Clyde.	3631	1910	Pierre Vachon	Rigaud	F. 1918	A1

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*Horse requires inspection; Owner should look up route of Inspectors and present stallion at his nearest Inspection point at time stated.

LIST OF HORSES FOR WHICH THE REGULAR ENROLMENT CERTIFICATE HAS NOT BEEN ISSUED.

Horses for which Interim Certificates Have Been Issued.

x 165	Royal Milton	Meharey & Belore	Glen Meyer.
x6322	Albert of Elm Shade	Alexander Calder	Holstein (R.R. 1.)
x4769	Acme Prince 2nd	Lee Roberts	Haliburton.
x6338	Lord Lorne	Andrew MacKay	Woodville.
x5338	Isodonte	Armand Valois	Mattawa.
x4060	Pacing Patch	Wm. Stroud	Hamilton.
x 923	Achille	J. W. Coulter	Cookstown.
x1953	King Brunstane	Wm. Munns	North Bay.
x6092	Perfect Boy	Wm. Robinson	Bass Creek.
x 183	Major Lewis	Jos. O'Holleran	Penetanguishene.
x4122	Richard Dare	B. C. Robinson	MacLennan.
x3476	Jason (imp.)	Geo. Broadley	Wyecombe.
x5381	Judson MacQueen	J. B. Johnson	Hagersville.
x4432	Royal Saxon	Francis P. Carroll	Midland.
x6317	Brunstane Junior	Bert Harris	Cheltenham.
x 546	The Beson	Noonan & Young	Mt. Forest.
x5174	Gipsy Jake	Geo. W. Busey	Wiarton.
x 256	Borrow Moss (imp.)	S. E. Roddy	Omemee.

The following Stallion owners have paid required fees on horses as listed below but have not furnished office with such information as horse can be enrolled for 1920.

x4865	Sure Security	John Wood	Cambray.
x4418	Superior 2nd	James H. Mervyn	Massey.
x3860	Imperial Jr.	George Allen	Horning's Mills.
x1842	Lacra (imp.)	M. Wedrick	Nanticoke.
x 119	Nello	Wm. Hanson	Eberts (R.R. 1).
x6356	Gaston 2nd	John A. Smith	Tilbury.

THE FOLLOWING CHANGES IN THE ACT ARE RECOMMENDED BY THE STALLION ENROLMENT BOARD.

(1) In order that stallion owners shall be influenced to have their horses enrolled before the season commences, the fees to be arranged as follows:—

For Enrolment before May 1st	$2 00
For Enrolment, after May 1st, during the season	4 00
For Inspection, at the regular time	3 00
For Special Inspection—the actual cost.	
For Renewal of Enrolment, before May 1st	1 00
For Renewal of Enrolment, after May 1st, during the season	2 00
Transfer of Certificate, in all cases	0 50

(2) In order that it shall be known by the Department that stallion owners are properly advertising their horses, the law be amended to read, "That two copies of every bill, poster or advertisement, shall be mailed to the Secretary of the Stallion Enrolment Board, Toronto, by the person or firm employed to print or publish such advertisement."

(3) That any bill, poster or other printed matter advertising any stallion for public service shall be evidence that such printed matter was used to advertise the stallion named with the consent of the owner of the said stallion.

(4) The certificate of enrolment and inspection of any stallion shall form a prominent part of any newspaper or other printed advertisement issued to advertise such stallion with this exception, that in the case of advertising in a newspaper, the

name, enrolment number, form of certificate, and the words describing form of certificate, and date issued, need alone be printed.

(5) That where in the opinion of the Board the report on any horse would lead them to believe that the use of such horse for breeding purposes would be detrimental to the horse industry of the Province of Ontario, in such case the Board would issue a statement to the owner of such stallion, describing the defects of the stallion in detail, and informing the owner that such horse was not considered suitable for breeding purposes, and therefore, he could not be used for public service in the Province of Ontario. Such notice could be rescinded if on re-inspection the horse would afterward be considered to be suitable.

(6) It should be made plain in the Act that no stallion owner can collect service fees for a horse that is not enrolled at the time of service.

(7) If the mare owner neglects or refuses to pay the service fee before the first day of November in the year in which the colt or filly was foaled, the owner of any stallion which was enrolled at the time of service, or his representative, may at any time before the first day of May of the next year take possession of the colt or filly and sell same by public auction. From the proceeds of the sale, expenses and stallion fees to be taken and the balance remitted to the owner of colt or filly.

NOTES REGARDING INSPECTION, FALL 1920.

(1) Horses requiring inspection before enrolment will be issued for the season 1921.

(*a*) All horses marked "*" in the report of stallions enrolled for the season 1920.

(*b*) All newly imported stallions.

(*c*) Horses that have never been enrolled in the Province of Ontario.

(2) Owners of pure-bred horses which do not require inspection in order to be enrolled for the season 1921 may present their horses to the inspectors at the regular fall inspection in order that such horses may be recommended for a higher form of certificate than the form issued for 1920. The inspection of such horses will be made free of charge.

(3) No grade horse can be enrolled or used for public service in the Province of Ontario.

(4) An alphabetical list of Counties is given, which shows the district in which each County is situated, and by referring to that district each stallion owner may ascertain the point of inspection most convenient for himself.

(5) Stallion owners should present horses at the hour stated, as the Inspectors have only a limited time to stay at each inspection point.

(6) If a stallion owner is in doubt regarding whether his horse requires inspection or not, he should present the horse in any case, as such inspection if not necessary, would be free.

(7) Fees for Regular Fall Inspection: As enrolment certificates expire December 31st, fees for season 1921 should be sent promptly during the month of January to the Secretary's office.

(*a*) Horses which have never been previously inspected or enrolled in the Province of Ontario, fee $5 and Canadian Registration Certificate issued by the Canadian National Live Stock Records, showing the applicant as recorded owner, should be mailed to the Secretary's office before January 31st, 1921, when Enrolment Certificate will be issued.

(*b*) Horses which have been enrolled for season 1920 but requiring inspection for enrolment in 1921, fee, inspection $3.00, renewal of enrolment $1.00, total $4.00.

(*c*) Horses not requiring inspection for renewal of enrolment in 1921, fee, $1.00.

(*d*) In case there has been a transfer of ownership of horses included in "b" and "c" an additional fee of 50c. and the Canadian Registration Certificate showing the present owner properly recorded, should accompany regular fees.

(8) All communications should be addressed, Secretary, Ontario Stallion Enrolment Board, Parliament Buildings, Toronto, Ontario.

ROUTE OF STALLION INSPECTORS IN ONTARIO, SHOWING IN WHICH DISTRICT EACH COUNTY IS SITUATED.

County.	In Dist. No.	County.	In Dist. No.
Brant	2	Lincoln	2
Bruce	3	Middlesex	1
Carlton	6	Norfolk	2
Dufferin	3, 4	Northumberland	5
Dundas	6	Ontario	4, 5
Durham	5	Oxford	2
Elgin	1, 2	Peel	4
Essex	1	Perth	1, 2, 3
Frontenac	5	Peterborough	5
Glengarry	6	Prescott	6
Grenville	6	Prince Edward	5
Grey	3, 4	Renfrew	6
Haldimand	2	Russell	6
Halton	2, 4	Simcoe	4
Hastings	5	Stormont	6
Huron	1, 3	Victoria	5
Kent	1	Waterloo	2
Lambton	1	Welland	2
Lanark	6	Wellington	2, 3, 4
Leeds	5, 6	Wentworth	2
Lennox and Addington	5	York	4

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 1.

Consisting of the Counties of Essex, Kent, Lambton, Middlesex, Elgin, and part of the Counties of Huron and Perth.

Place.		Time Inspection Commences.		Date.
Brucefield		8.30 a.m.	Wednesday,	Oct. 20th
Bayfield		11.30 a.m.	"	" 20th
Zurich	Commercial Hotel	3.00 p.m.	"	" 20th
Hensall	New Commercial Hotel	5.00 p.m.	"	" 20th
Exeter	Central Hotel	9.30 a.m.	Thursday,	Oct. 21st
Centralia		11.30 a.m.	"	" 21st
Kirkton	Kirkton House	3.30 p.m.	"	" 21st
St. Mary's	Garnet House	8.00 a.m.	Friday,	Oct. 22nd
Parkhill	Arlington Hotel	10.30 a.m.	"	" 22nd
Thedford		2.30 p.m.	"	" 22nd
Forest	Franklin House	9.00 a.m.	Saturday,	" 23rd
Camlachie		11.30 a.m.	"	" 23rd
Sarnia	Moor's Livery & Sale Barn	3.30 p.m.	"	" 23rd
Petrolia	Fletcher House	9.00 a.m.	Monday,	" 25th
Watford	Roache's Hotel	3.00 p.m.	"	" 25th
Strathroy	American Hotel	9.00 a.m.	Tuesday,	" 26th
London	Queen's Hotel	1.00 p.m.	"	" 26th
Ilderton		5.00 p.m.	"	" 26th
Longwood		8.30 a.m.	Wednesday,	" 27th
Alvinston	Bidner's House	2.30 p.m.	"	" 27th
Oil City		5.00 p.m.	"	" 27th
Edy's Mills		8.30 a.m.	Thursday,	" 28th

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 1.—*Continued.*

Place.		Time Inspection Commences.		Date.
Courtright	Hotel Bedard	1.00 p.m.	Thursday,	Oct. 28th
Sombra	Grand Union Hotel	4.00 p.m.	“	“ 28th
Wallaceburg	Dupont Hotel	9.00 a.m.	Friday,	“ 29th
Croton		8.00 a.m.	Saturday,	“ 30th
Bothwell	Central Hotel	11.00 a.m.	“	“ 30th
Northwood		3.30 p.m.	“	“ 30th
Chatham	Garner House	9.00 a.m.	Monday,	Nov. 1st
Tilbury	Balmoral Hotel	1.30 p.m.	“	“ 1st
Belle River		8.30 a.m.	Tuesday,	“ 2nd
Leamington		1.00 p.m.	“	“ 2nd
Kingsville	King's Hotel	9.00 a.m.	Wednesday,	“ 3rd
McGregor		1.30 p.m.	“	“ 3rd
Amherstburg		3.00 p.m.	“	“ 3rd
Essex	Stot's Hotel	10.00 a.m.	Thursday,	“ 4th
Maidstone		3.00 p.m.	“	“ 4th
Fletcher		8.30 a.m.	Friday,	“ 5th
Charing Cross		1.00 p.m.	“	“ 5th
Blenheim	Truax Feed Barn	3.30 p.m.	“	“ 5th
St. Thomas	Grand Union Barne's Stables	8.30 a.m.	Saturday,	“ 6th
Aylmer		11.00 a.m.	“	“ 6th
Belmont		3.00 p.m.	“	“ 6th

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 2.

Consisting of the Counties of Oxford, Brant, Norfolk, Haldimand, Welland, Lincoln, Wentworth, Waterloo, and part of the Counties of Elgin, Halton, Wellington, and Perth.

Place.		Time Inspection Commences.		Date.
Port Burwell	Commercial Hotel	10.00 a.m.	Wednesday,	Oct. 20th
Tillsonburg	Arlington Hotel	3.00 p.m.	“	“ 20th
Springford		5.00 p.m.	“	“ 20th
Lynedoch		8.30 a.m.	Thursday,	“ 21st
Port Rowan		1.15 p.m.	“	“ 21st
Simcoe	Battersby Hotel	3.30 p.m.	“	“ 21st
Waterford	Calwell House	5.30 p.m.	“	“ 21st
Jarvis		8.30 a.m.	Friday,	Oct. 22nd
Nanticoke		11.00 a.m.	“	“ 22nd
Hagersville	Evan's Feed Barn	3.00 p.m.	“	“ 22nd
Caledonia		8.30 a.m.	Saturday,	“ 23rd
Dunnville	Hall's Feed Barn	11.30 a.m.	“	“ 23rd
Marshville		4.00 p.m.	“	“ 23rd
Welland	Rice Hotel	8.30 a.m.	Monday,	“ 25th
Niagara Falls	Windsor Hotel	11.00 a.m.	“	“ 25th
Niagara-on-the-Lake		5.00 p.m.	“	“ 25th
St. Catharines	American Hotel	8.30 a.m.	Tuesday,	“ 26th
Fenwick		1.30 p.m.	“	“ 26th
Vinemount		4.00 p.m.	“	“ 26th
Smithville	Village Inn	8.30 a.m.	Wednesday,	“ 27th
Dundas	Melbourne Hotel	11.30 a.m.	“	“ 27th
Troy		5.00 p.m.	“	“ 27th
Brantford	Belmont Hotel	8.30 a.m.	Thursday,	“ 28th
Paris	Royal Hotel	1.00 p.m.	“	“ 28th
Ingersoll	Oxford Hotel	8.30 a.m.	Friday,	“ 29th
Thamesford	Balmoral	11.00 a.m.	“	“ 29th
Oxford Centre		p.m.	“	“ 29th
Eastwood		p.m.	“	“ 29th
Tavistock		8.30 a.m.	Saturday,	“ 30th
Shakespeare		11.00 a.m.	“	“ 30th
Bright		3.00 p.m.	“	“ 30th
Galt	Iroquois Hotel	8.30 a.m.	Monday,	Nov. 1st
Elmira	Zilliax Hotel	1.00 p.m.	“	“ 1st
Wallenstein		3.30 p.m.	“	“ 1st

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 3.—*Continued.*

Place.		Time Inspection Commences.		Date.
St. Clements		5.00 p.m.	Monday,	Nov. 1st
Kitchener	Grand Central Hotel	9.00 a.m.	Tuesday,	“ 2nd
Guelph	Winter Fair Building	3.30 p.m.	“	“ 2nd
Moffat		8.00 a.m.	Wednesday,	“ 3rd
Milton		10.00 a.m.	“	“ 3rd
Oakville		3.00 p.m.	“	“ 3rd

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 3.

Consisting of the Counties of Grey and Bruce, and part of the Counties of Huron, Perth, Wellington and Dufferin.

Place.		Time Inspection Commences.		Date.
Blyth	Mason's Hotel	1.00 p.m.	Wednesday,	Oct. 20th
Clinton	Rattenbury House	4.30 p.m.	“	“ 20th
Seaforth	Dick House	8.00 a.m.	Thursday,	“ 21st
Bornholm		1.00 p.m.	“	“ 21st
Mitchell	Hick's House	2.45 p.m.	“	“ 21st
Stratford	Queen's Hotel	8.30 a.m.	Friday,	“ 22nd
Gadshill		11.00 a.m.	“	“ 22nd
Milverton		1.30 p.m.	“	“ 22nd
Atwood		4.00 p.m.	“	“ 22nd
Listowel	Grand Central Hotel	7.30 a.m.	Saturday,	“ 23rd
Palmerston	Imperial Hotel	9.30 a.m.	“	“ 23rd
Harriston	Collison House	11.00 a.m.	“	“ 23rd
Gorrie	Hotel	1.30 p.m.	“	“ 23rd
Belmore		3.30 p.m.	“	“ 23rd
Teeswater	Vendome Hotel	5.00 p.m.	“	“ 23rd
Wingham	Queen's Hotel	9.00 a.m.	Monday,	“ 25th
Lucknow		1.30 p.m.	“	“ 25th
Dungannon		4.00 p.m.	“	“ 25th
Ripley	Commercial House	10.00 a.m.	Tuesday,	“ 26th
Tiverton		2.30 p.m.	“	“ 26th
North Bruce		4.30 p.m.	“	“ 26th
Port Elgin		9.30 a.m.	Wednesday,	“ 27th
Paisley		1.30 p.m.	“	“ 27th
Eden Grove		4.00 p.m.	“	“ 27th
Walkerton	Hartley House	9.00 a.m.	Thursday,	“ 28th
Mildmay		1.00 p.m.	“	“ 28th
Ayton		4.00 p.m.	“	“ 28th
Chesley		8.30 a.m.	Friday,	“ 29th
Dobbinton		11.00 a.m.	“	“ 29th
Allenford	Church Shed	1.30 p.m.	“	“ 29th
Wiarton	Pacific Hotel	4.00 p.m.	“	“ 29th
North Keppel		11.00 a.m.	Saturday,	“ 30th
Presque Isle		2.00 p.m.	“	“ 30th
Owen Sound	Queen's Hotel	4.00 p.m.	“	“ 30th
Cape Rich		11.00 a.m.	Monday,	Nov. 1st
Bognor		4.00 p.m.	“	“ 1st
Epping		9.00 a.m.	Tuesday,	2nd
Markdale	Markdale House	2.30 p.m.	“	“ 2nd
Dundalk		5.00 p.m.	“	“ 2nd
Melancthon		9.00 a.m.	Wednesday,	“ 3rd
Monticello		1.00 p.m.	“	“ 3rd
Conn		4.30 p.m.	“	“ 3rd
Mount Forest	Belmont House	9.00 a.m.	Thursday,	“ 4th
Holstein		1.30 p.m.	“	“ 4th
Arthur	Arlington Hotel	9.00 a.m.	Friday,	“ 5th

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 4.

Consisting of the Counties of Simcoe, York, Peel, and part of the Counties of Halton, Wellington, Dufferin, Grey and Ontario.

Place.		Time Inspection Commences.		Date.
Allandale		9.00 a.m.	Wednesday,	Oct. 20th
Shanty Bay		1.00 p.m.	“	“ 20th
Orillia	Orillia House	4.45 p.m.	“	“ 20th
Sturgeon Bay		8.30 a.m.	Thursday,	“ 21st
Fergusonvale		4.00 p.m.	“	“ 21st
Elmvale	Queen's Hotel	5.30 p.m.	“	“ 21st
Angus		10.00 a.m.	Friday,	“ 22nd
Stayner		1.00 p.m.	“	“ 22nd
Creemore	Dufferin Hotel	4.00 p.m.	“	“ 22nd
Singhampton		10.00 a.m.	Saturday,	“ 23rd
Feversham	Hotel	1.00 p.m.	“	“ 23rd
Alliston	Dominion Hotel	9.00 a.m.	Monday,	“ 25th
Everett	Hotel	11.00 a.m.	“	“ 25th.
Rosemont		3.00 p.m.	“	“ 25th
Cookstown		8.30 a.m.	Tuesday,	“ 26th
Terra Cotta		1.00 p.m.	“	“ 26th
Alton		4.30 p.m.	“	“ 26th
Orangeville	American Hotel	8.30 a.m.	Wednesday,	“ 27th
Laurel		11.00 a.m.	“	“ 27th
Grand Valley	Commercial Hotel	2.30 p.m.	“	“ 27th
Hillsburg		9.30 a.m.	Thursday,	“ 28th
Fergus	Fergus Inn	1.30 p.m.	“	“ 28th
Alma		4.30 p.m.	“	“ 28th
Brampton	Victoria Hotel	10.30 a.m.	Friday,	“ 29th
Malton		4.30 p.m.	“	“ 29th
Weston	Eagle House	4.30 p.m.	“	“ 29th
Bolton	Queen's Hotel	8.30 a.m.	Saturday,	“ 30th
Woodbridge		11.00 a.m.	“	“ 30th
Davenport		3.00 p.m.	“	“ 30th
Summerville		8.30 a.m.	Monday,	Nov. 1st
Newton Brook		3.00 p.m.	“	“ 1st
Richmond Hill		5.00 p.m.	“	“ 1st
Aurora		8.30 a.m.	Tuesday,	“ 2nd
Kettleby		10.30 a.m.	“	“ 2nd
Queensville		2.30 p.m.	“	“ 2nd
Ravenshoe		4.30 p.m.	“	“ 2nd
Zephyr		9.00 a.m.	Wednesday,	“ 3rd
Uxbridge		1.00 p.m.	“	“ 3rd
Stouffville	Miller's Hotel	4.00 p.m.	“	“ 3rd
Markham	Andrew's Hotel	8.30 a.m.	Thursday,	“ 4th
Unionville		11.00 a.m.	“	“ 4th
Claremont	Hotel	2.30 p.m.	“	“ 4th
Myrtle	Bernie House	8.30 a.m.	Friday,	“ 5th
Columbus		10.30 a.m.	“	“ 5th
Pickering	Gordon House	8.30 a.m.	Saturday,	“ 6th
Scarborough		11.00 a.m.	“	“ 6th
Toronto				

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 5.

Consisting of the Counties of Durham, Northumberland, Peterboro, Victoria, Hastings, Lennox and Addington, Frontenac, and Prince Edward, and part of the Counties of Leeds and Ontario.

Place.		Time Inspection Commences.		Date.
Cannington	Queen's Hotel	8.30 a.m.	Wednesday,	Oct. 20th
Woodville	Woodville Hotel	11.00 a.m.	“	“ 20th
Beaverton	Ontario House	3.30 p.m.	“	“ 20th
Brechin		8.30 a.m.	Thursday,	“ 21st
Kirkfield	Kirkfield House	11.30 a.m.	“	“ 21st

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 5.—*Continued.*

Place.		Time Inspection Commences.		Date.
Norland	Kirkfield House	4.00 p.m.	Thursday,	Oct. 21st
Lindsay	Benson House	10.30 a.m.	Friday,	" 22nd
Cameron		3.00 p.m.	"	" 22nd
Bobcaygeon		8.30 a.m.	Saturday,	" 23rd
Downeyville		1.30 p.m.	"	" 23rd
Omemee	Commercial Hotel	4.00 p.m.	"	" 23rd
Mount Pleasant		10.00 a.m.	Monday,	" 25th
Franklin		1.00 p.m.	"	" 25th
Janetville		3.30 p.m.	"	" 25th
Bethany		5.00 p.m.	"	" 25th
South Monaghan		8.30 a.m.	Tuesday,	" 26th
Baillieboro		10.00 a.m.	"	" 26th
Peterboro	Munro House	1.00 p.m.	"	" 26th
Keene		3.00 p.m.	"	" 26th
Hastings	Clarendon	5.00 p.m.	"	" 26th
Roseneath		9.00 a.m.	Wednesday,	" 27th
Havelock	Armstrong	1.30 p.m.	"	" 27th
Blairton		4.00 p.m.	"	" 27th
Marmora		8.00 a.m.	Thursday,	" 28th
Gunter		11.30 a.m.	"	" 28th
Cooper		3.30 p.m.	"	" 28th
Stoco		9.30 a.m.	Friday,	" 29th
Tamworth		3.30 p.m.	"	" 29th
Harrowsmith		10.00 a.m.	Saturday,	" 30th
Kingston	Grimason Hotel	9.00 a.m.	Monday,	Nov. 1st
Wolfe Island		11.00 a.m.	"	" 1st
Gananoque	Shield's Hotel	2.30 p.m.	"	" 1st
Napanee	Lennox Hotel	11.00 a.m.	Tuesday,	" 2nd
Belleville	Hotel Quinte	3.00 p.m.	"	" 2nd
Foxboro		5.00 p.m.	"	" 2nd
Picton	Royal Hotel	10.30 a.m.	Wednesday,	" 3rd
Bloomfield		1.30 p.m.	"	" 3rd
Consecon		4.00 p.m.	"	" 3rd
Brighton		9.00 a.m.	Thursday,	" 4th
Morganston		2.00 p.m.	"	" 4th
Cobourg	British Hotel	9.00 a.m.	Friday,	" 5th
Orono		3.00 p.m.	"	" 5th

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 6.

Consisting of the Counties of Renfrew, Lanark, Carlton, Grenville, Dundas, Stormont, Glengarry, Russell, Prescott, and part of the County of Leeds.

Place.		Time Inspection Commences.		Date.
Westport		2.00 p.m.	Wednesday,	Oct. 20th
Wemyss		4.30 p.m.	"	" 20th
Perth	Revere House	8.30 a.m.	Thursday,	" 21st
Hopetown		1.00 p.m.	"	" 21st
Smith's Falls	Russell House	4.30 p.m.	"	" 21st
Carleton Place	Mississippi Hotel	8.30 a.m.	Friday,	" 22nd
Appleton		11.00 a.m.	"	" 22nd
Almonte		2.00 p.m.	"	" 22nd
Arnprior		8.30 a.m.	Saturday,	" 23rd
Renfrew		11.00 a.m.	"	" 23rd
Hyndford		3.00 p.m.	"	" 23rd
Douglas		4.00 p.m.	"	" 23rd
Barry's Bay		1.30 p.m.	Monday,	" 25th
Killaloe		3.30 p.m.	"	" 25th
Pembroke	Leeland Hotel	9.00 a.m.	Tuesday,	" 26th
Cobden		3.30 p.m.	"	" 26th
Beachburg	Tracey's Hotel	5.00 p.m.	"	" 26th
Dunrobin		11.30 a.m.	Wednesday,	" 27th
Stittsville	Geo. Green's Hotel	3.00 p.m.	"	" 27th

ROUTE OF STALLION INSPECTORS IN DISTRICT No. 6.—*Continued.*

Place.		Time Inspection Commences.		Date.	
Ottawa		10.00 a.m.	Thursday,	Oct.	28th
Navan		4.00 p.m.	“	“	28th
Cumberland		8.30 a.m.	Friday,	“	29th
Hawkesbury		11.00 a.m.	“	“	29th
Glensandfield		5.00 p.m.	“	“	29th
St. Anne de Prescott		9.00 a.m.	Saturday,	“	30th
Caledonia Springs		2.00 p.m.	“	“	30th
Plantaganet	Boleau's Hotel	4.00 p.m.	“	“	30th
Vars		9.00 a.m.	Monday,	Nov.	1st
Russell		11.30 a.m.	“	“	1st
Casselman		4.30 p.m.	“	“	1st
Alexandria	Ottawa Hotel	9.30 a.m.	Tuesday,	“	2nd
Green Valley		11.00 a.m.	“	“	2nd
Monkland Station		4.00 p.m.	“	“	2nd
Chesterville	McCluskey's Hotel	9.00 a.m.	Wednesday,	“	3rd
Morewood		11.00 a.m.	“	“	3rd
Cannamore		1.30 p.m.	“	“	3rd
Winchester	Winchester Hotel	4.00 p.m.	“	“	3rd
Inkerman		9.00 a.m.	Thursday,	“	4th
Kemptville	McPherson House	11.00 a.m.	“	“	4th
North Gower	J. McCurdy's Hotel	4.00 p.m.	“	“	4th
Spencerville		9.00 a.m.	Friday,	“	5th
Prescott		11.00 a.m.	“	“	5th
Cornwall	Windsor Hotel	4.15 p.m.	“	“	5th
Williamsburg		8.00 a.m.	Saturday,	“	6th
Dixon's Corners		10.00 a.m.	“	“	6th
Cardinal		11.30 a.m.	“	“	6th
Brockville		2.30 p.m.	“	“	6th

BELOW IS GIVEN LIST OF STALLIONS WHICH HAVE RECEIVED PREMIUM CERTIFICATES FOR THE YEAR 1920.

Name of Horse.	Record No.	Breed.
Lavis (imp.)	3897	Percheron.
Gay Ronald	15342	Clydesdale.
Boulder Grange Du Fosteau.	886	Belgian Draft.
Bricanan	6565	Percheron.
Royal Marathon	19471	Clydesdale.
Baron's Court	18366	Clydesdale.
Bonnie Flisk (imp)	18260	Clydesdale.
Fyvie Pearl (imp.)	18263	Clydesdale.
Reminder (imp.)	18265	Clydesdale.
Solidity (imp.)	18367	Clydesdale.
Golden Taylor	18590	Clydesdale.
Black Gregor (imp.)	19658	Clydesdale.
Bonaday	1478	Standard Bred.
Carbrook Buchlyvie (imp.)	22039	Clydesdale.
Fyvie Bonus (imp)	22265	Clydesdale.
Dandaleith Diamond (imp.)	22252	Clydesdale.
Destiny	21949	Clydesdale.
Kello Crest	21945	Clydesdale.
Westminster	21948	Clydesdale.
Hartington (imp.)	19655	Clydesdale.
Jess Willard	5124	Percheron.
The Select	21947	Clydesdale.
Glad Eye (imp.)	21946	Clydesdale.
Graymont	9697	Percheron.
Grecourt Junior	9695	Percheron.
Diamond	9696	Percheron.
Hannibal	9698	Percheron.
Ames Inclement	9703	Percheron.
Lord Ullin (imp.)	15191	Clydesdale.
Helsington Champion	21944	Clydesdale.
Cumberland Steel	22070	Clydesdale.

BELOW IS GIVEN LIST OF STALLIONS WHICH HAVE RECEIVED PREMIUM CERTIFICATES FOR THE YEAR 1920.—*Continued.*

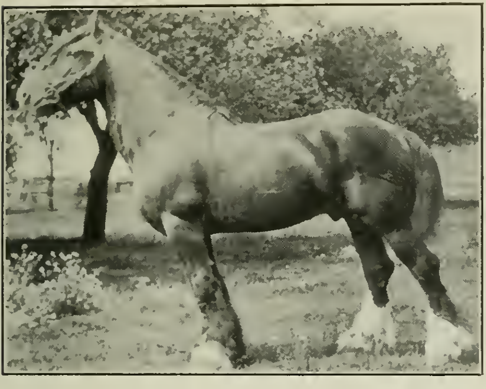
Name of Horse.	Record No.	Breed.
Alberta Besique	6510	Percheron.
Joe Marathon	20069	Clydesdale.
Burt Axworthy	1845	Standard Bred.
Royal Design	17286	Clydesdale.
Lord Malcolm (imp.)	15194	Clydesdale.
Baron Alton (imp.)	15295	Clydesdale.
De Wilton (imp.)	634	Hackney.
Dunure Lucky Star	15379	Clydesdale.
Dunure Beaulieu (imp.)	12681	Clydesdale.
Dunure Captain (imp.)	14126	Clydesdale.
King Junior (imp.)	1068	Shire.
Scottish Gem (imp.)	12560	Clydesdale.
Rosyth (imp.)	18326	Clydesdale.
Aurelian (imp.)	18325	Clydesdale.
Royal Favour	18361	Clydesdale.
Croton Forest King	1222	Shire.
Riverbank (imp.)	17954	Clydesdale.
Colonel Bowers	19005	Clydesdale.
Dandy	5542	Percheron.
Karrara (imp.)	3071	Percheron.
Warwick Model (imp.)	304	Hackney.
Jabot (imp.)	3139	Percheron.
Colonel Graham (imp.)	9235	Clydesdale.
King Thomas (imp.)	9254	Clydesdale.
Commodore (imp.)	9596	Clydesdale.
Clarion (imp.)	15146	Clydesdale.
Joe Gleam	16716	Clydesdale.
Ken Favourite (imp.)	16472	Clydesdale.
Horizon (imp.)	16341	Clydesdale.
Mouchoir (imp.)	4725	Percheron.
Prince Palatine (imp.)	15907	Clydesdale.
Peter Wilton	858	Standard Bred.
Impeccable	2245	Percheron.
Royal Hero (imp.)	9715	Clydesdale.
Earl O'Clay	12035	Clydesdale.
Terrington Cetewayo (imp.)	401	Hackney.
Tressilian (imp.)	16332	Clydesdale.
Everard (imp.)	16333	Clydesdale.
Baron Senwick (imp.)	16408	Clydesdale.
Kodi (imp.)	4462	Percheron.
Lively	8669	Percheron.
Tara Baron	17148	Clydesdale.
Baron Dalmar	20419	Clydesdale.
Billy Bingen	2182	Standard Bred.
Pride of Dunedin	17299	Clydesdale.
Roliere	7374	Percheron.
March Past	19994	Clydesdale.
Woodrow Wilson	8668	Percheron.
Spey Pearl	780	Thoroughbred.
Regent Donald	20304	Clydesdale.
Dextro	7819	Percheron.
Monogram	8304	Percheron.
General Joffre	20453	Clydesdale.
Eastfield Charles	19762	Clydesdale.
Intellect	8830	Percheron.
British Hero	20573	Clydesdale.
Taft	9071	Percheron.
Prince Acme	15573	Clydesdale.
Sir James of Alton (imp.)	17283	Clydesdale.
Jerry J.	0101	Standard Bred.
Craigie Baronet (imp.)	17599	Clydesdale.
Merry Baron (imp.)	17284	Clydesdale.
Chieftain	4583	Percheron.
Craigie Junior	17080	Clydesdale.
Lord Erskine Cairndale	17038	Clydesdale.

BELOW IS GIVEN LIST OF STALLIONS WHICH HAVE RECEIVED PREMIUM CERTIFICATES FOR THE YEAR 1920.—*Continued.*

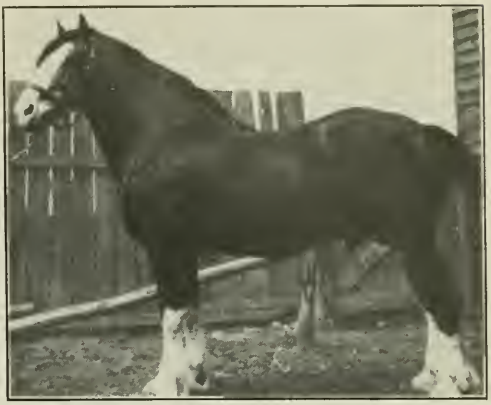
Name of Horse.	Record No.	Breed.
The Count of Hillcrest	15774	Clydesdale.
Baron Clifty (imp.)	17266	Clydesdale.
Dunure Gulf Stream (imp.)	16859	Clydesdale.
Major Cormier	3742	Percheron.
Sir Simon Romeo	16919	Clydesdale.
Raith Standard (imp.)	16180	Clydesdale.
Ravenscraig (imp.)	16860	Clydesdale.
Prince Blue	1315	Standard Bred.
Village Swain (imp.)	15167	Clydesdale.
Junior (imp.)	3824	Percheron.
Lambton (imp.)	15299	Clydesdale.
Laurie Kitchener	21463	Clydesdale.
Baron Bobs	21952	Clydesdale.
Intime (imp.)	6219	Percheron.
Richardson Model	20526	Clydesdale.
Ever Ready (imp.)	21951	Clydesdale.
Aberdonian (imp.)	21953	Clydesdale.
Sir Simon	20631	Clydesdale.
Mac Brino	2950	Standard Bred.
Isly (imp.)	3066	Percheron.
Dunure David (imp.)	13674	Clydesdale.
Gladiator 2nd	17237	Clydesdale.
Tom McNab (imp.)	9800	Clydesdale.
Charles Gilbert	360	Thoroughbred.
Honest John	12083	Clydesdale.
Journalier (imp.)	2330	Percheron.
King's Champion (imp.)	13174	Clydesdale.
Prince of Greenhall (imp.)	11684	Clydesdale.
Pride of Glencairn (imp.)	10377	Clydesdale.
Sir David Junior	14458	Clydesdale.
Viscount Kinnaird (imp.)	13822	Clydesdale.
Royal Cadet (imp.)	13844	Clydesdale.
Spartan (imp.)	509	Hackney.
Lord Gray (imp.)	12390	Clydesdale.
Elmer Dickson	2295	Standard Bred.
Black Beauty	8670	Percheron.

HORSES THAT HAVE RECEIVED PREMIUMS FOR THE SEASON, 1919.

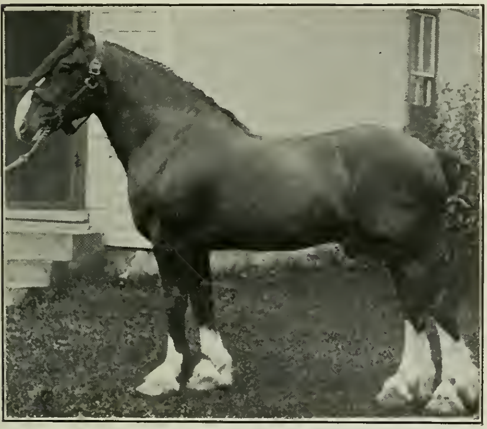
Fyle.	Name of Horse.	Breed.	Name and Address of Owner.
x 713	Athol King—9178—	Clyde.	A. & Jas. Hewitt, Linwood.
x4578	Dunure Gulf Stream—16859—	Clyde.	Paterson Bros., Agincourt.
x3400	Lambton (imp.)—15299—	Clyde.	John Fisher, Ringwood.
x1456—	Loyal Hero (imp.)—9715—	Clyde.	Geo. Clayton & Son, Grand Valley.
x1263	Spartan—509—	Hack.	Jas. Tilt, Brampton.
x4234	Tressilian (imp.)—16332—	Clyde.	Smith & Richardson, Columbus.
x4244	Lenoir—4443—	Per.	J. M. Barnhardt, Oro Station.
x3209	Baron's Luck (imp.)—5546—	Clyde.	George Henderson, Tara.
x5554	Black Gregor (imp.)—19658—	Clyde.	John A. Boag, Queensville.
x2330	King Thomas—9254—	Clyde.	T. J. Berry, Hensall.
x1825	Northern Light—13909—	Clyde.	Wm. Thompson, Rosemont.
x3741	Jeannin (imp.)—3074—	Per.	Wm. Thompson, Rosemont.
x3425	Great Eastern—15162—	Clyde.	Smith & Richardson, Columbus.
x3887	Prince Palatine (imp.)—15907—	Clyde.	Grandy Bros., Ida.
x5873	Voltaire—8302—	Per.	George Cottingham, Tilbury.
x4960	The Count of Hillcrest—15774—	Clyde.	T. H. Hassard, Markham.
x3622	Baron Alton—15295—	Clyde.	James Torrance, Markham.
x4221	Baron Senwick—16408—	Clyde.	Wm. Smith & Sons, Alma.
x4416	Gold Heels—1607—	St. Br.	Fred. W. Melvin, Vars.
x3612	Locksley—15239—	Clyde.	A. Dingman, Stratford.
x5408	Boulder Grange du Fosteau—886—	Bel. Dr.	C. W. Gurney, Paris.
x4612	Sir Simon Romeo—16919—	Clyde.	J. D. McPhee, Parkhill.
x 442	Tom McNab—9800—	Clyde.	Geo. Clayton & Son, Grand Valley.
x4577	Ravenscraig (imp.)—16860—	Clyde.	D. McKinnon & Sons, Hillsburg.
x2304	Touchstone—13846—	Clyde.	Frank Saint, Bradford.
x5379	Baron's Court—18366—	Clyde.	James Torrance, Markham.
x5913	Taft—9071—	Per.	Wm. Kidd, Franktown.
x5026	Knight of Maryfield (imp.)—7760—	Clyde.	Smith & Richardson, Columbus.
x4342	Mouchoir—4725—	Per.	John Buchanan, Campbellton.
x1265	King of the Saxons imp.)—13760—	Clyde.	W. B. Parker, Bright.
x5670	British Hero—20573—	Clyde.	Wm. Colquhoun, Mitchell.
x5034	Riverbank—17954—	Clyde.	Wm. Colquhoun, Mitchell.
x 397	Honest John—12083—	Clyde.	Jos. & Wm. Gray, Blyth.
x2018	Dunure David—13674—	Clyde.	W. D. Benstead, Alvinston.
x 506	Prince of Greenhall (imp.)—11684	Clyde.	Albert Hewson, Malton.
x5527	Bricanam—6565—	Per.	Arkles & Anderson, Castleton.
x4237	Everard (imp.)—16333—	Clyde.	Smith & Richardson, Columbus.
x5362	Solidity—18367—	Clyde.	D. J. Howard & J. Eby, Downsview, No. 1.
x 2	Hurleur (imp.)—1599—	Per.	J. F. Mulville, Westport.
x5130	Aurelian (imp.)—18325—	Clyde.	Brandon Bros., Forest.
x3446	Village Swain (imp.)—15167—	Clyde.	Smith & Richardson, Columbus.
x5444	Nard (imp.)—6382—	Per.	Robt. Graham, Renfrew.
x3970	Cumberlands Glory—15788—	Clyde.	Jas. D. Campbell, Cargill.
x1007	Lord Gray—12390—	Clyde.	Andrew B. Erskine, Parkhill.
x5329	Bonaday—1478—	St. Br.	F. J. Hassard, Weston.
x2332	Jabot—3139—	Per.	T. J. Berry, Hensall.
x5205	Dandy—5542—	Per.	Robt. H. Livingston, Woodbridge.
x2642	King Junior—1068—	Shire	Johnston Bros., Croton.
x4777	Lassis (imp.)—3920—	Per.	P. Herald & A. E. Ratz, Tavistock.
x 277	Pacific (imp.)—13173—	Clyde.	W. L. Mossip, St. Mary's.
x4279	Horison (imp.)—16341—	Clyde.	Wm. Foster, Markdale.
x3483	Bonnie Solway (imp.)—15293—	Clyde.	W. J. Oldham, Mt. Albert.
x4967	Royal Design—17286—	Clyde.	Smith & Richardson, Columbus.
x4968	Sir James of Alton (imp.)—17283—	Clyde.	T. H. Legge, Temperanceville. Jas. Torrance, Markham.
x4969	Merry Baron (imp.)—17284—	Clyde.	Patterson Bros., Millbrook, No. 2.
x2284	Commodore—9596—	Clyde.	T. J. Berry, Hensall.
x3403	Dunnottar—13906—	Clyde.	Telfer Bros., Milton West.
x4846	Craigie Baronet—J7599	Clyde.	Moses Forsyth, Mitchell.
x4361	Kent Favourite—16472—	Clyde.	Henry Reidt, Shakespeare.
x 820	Pride of Glencairn—10377—	Clyde.	J. E. Ellis, Blyth.
x1988	Belle Boy (imp.)—8524—	Clyde.	Nelson Wagg, Claremont.
x4170	Kodi (imp.)—4462—	Per.	John Buckingham, Wallaceburg.
x3489	Knockinlaw Revolt—15482—	Clyde.	John Gray, Atwood.
x2098	Isly (imp.)—3066—	Per.	James Hume, Georgetown.
x1961	Dunure Captain (imp.)—14126—	Clyde.	A. Gormley, Unionville.
x3665	Lord Malcolm (imp.)—15194—	Clyde.	Tos. Colquhoun, Staffa.



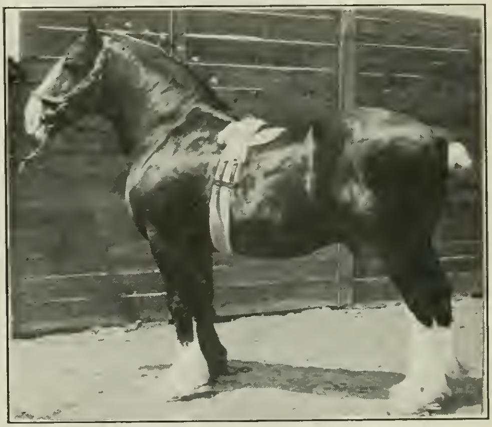
Athol King—9178—A. & J. Hewitt, Linwood.



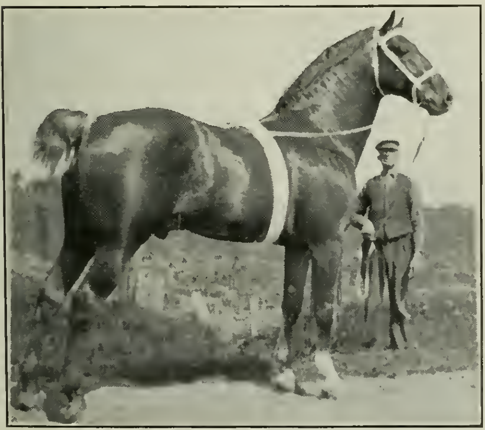
Dunure Gulf Stream—16859—Patterson Bros., Agincourt.



Lambton—15299—J. Fisher, Ringwood.

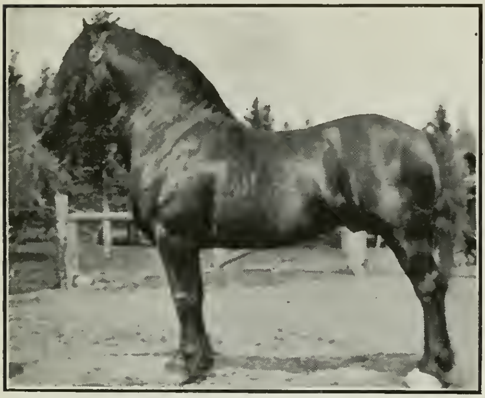


Loyal Hero—9715—G. Clayton, Grand Valley.

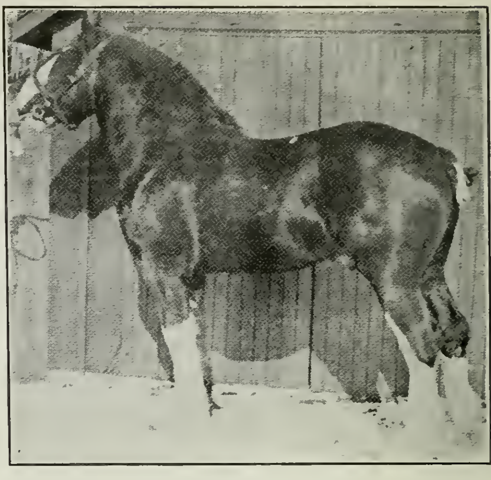


Spartan—509—Jas. Tilt, Brampton.

Tressilian—16332—Smith & Richardson, Columbus.



Lenoir—4443—J. M. Barnhardt, Oro Station.

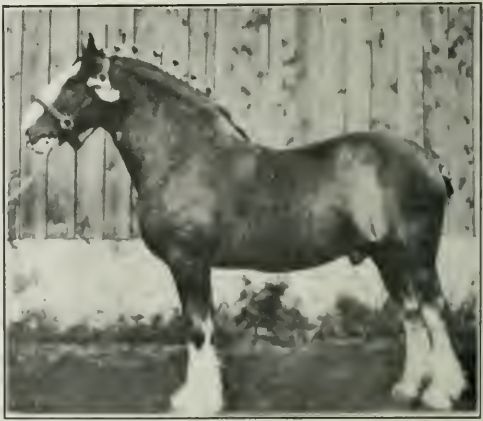


Black Gregor—19658—J. A. Boag & Son, Queensville.

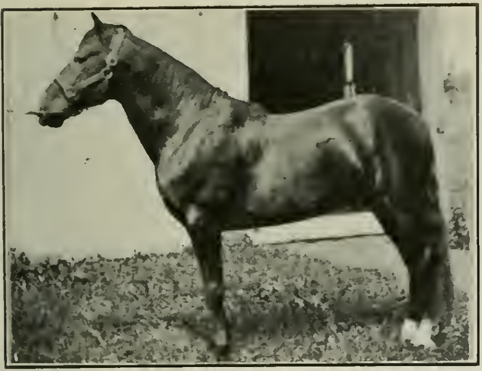
King Thomas—9254—T. J. Berry, Hensall.

Voltaire—8302—G. Cottingham, Tilbury.

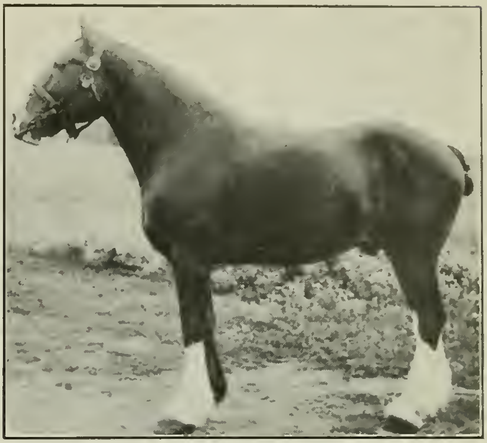
The Count of Hillcrest—15774—T. H. Hassard, Markham.



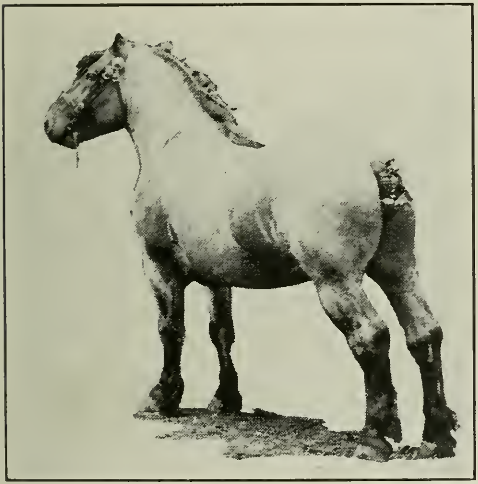
Baron Senwick—16408—W. Smith, Alma.



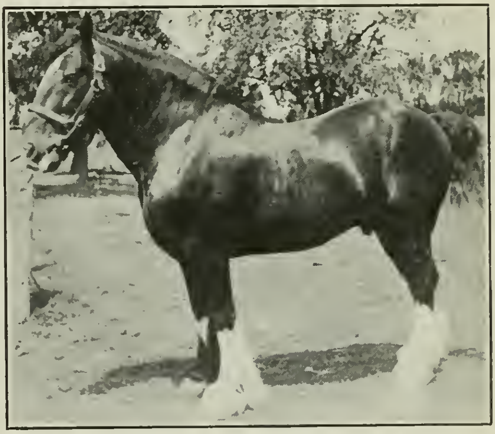
Gold Heels—1607—F. W. Melvin, Vars.



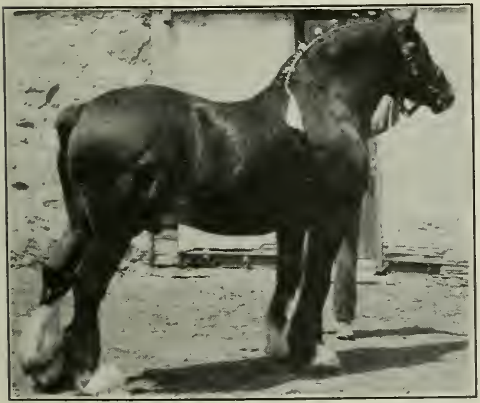
Locksley—15239—A. Dingman, Stratford.



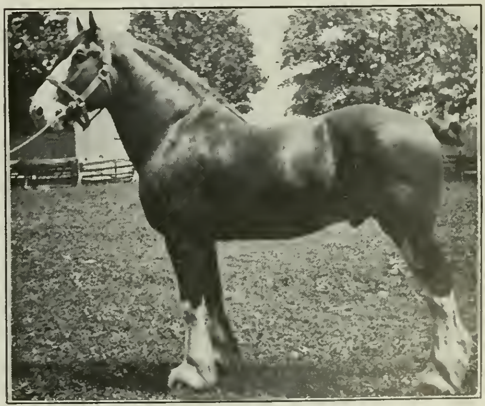
Boulder Grange Du Fosteau—886—C. W. Gurney & Sons, Paris.



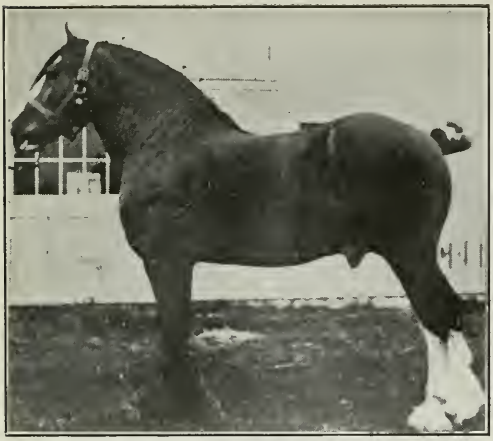
Sir Simon Romeo—16919—J. D. McPhee, Parkhill.



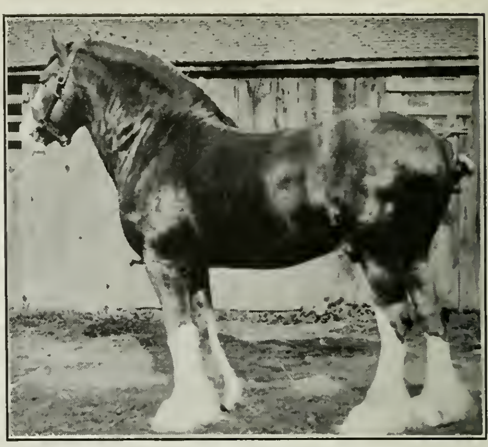
Tom McNab—9800—G. Clayton, Grand Valley.



Ravenscraig—16860—D. McKinnon, Hillsburg.

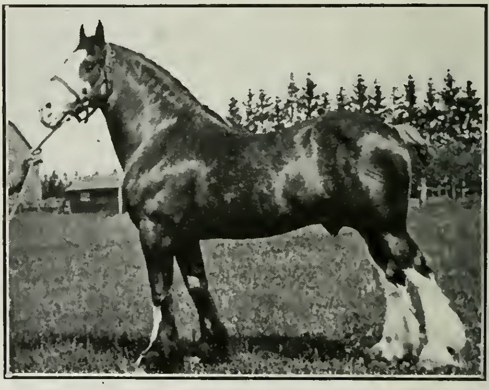


Baron's Court—18366—J. Torrance, Markham.



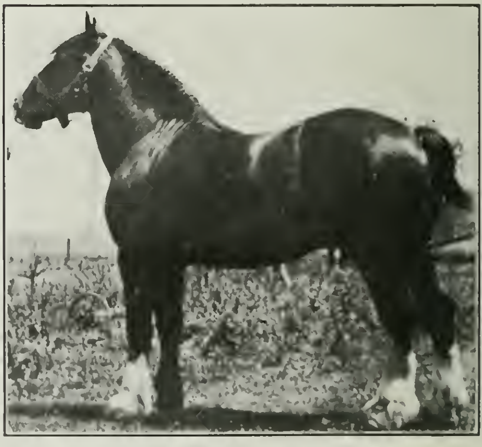
Dunure Captain—14126—G. Gormley, Unionville.

Taft—9071—W. Kidd, Franktown.



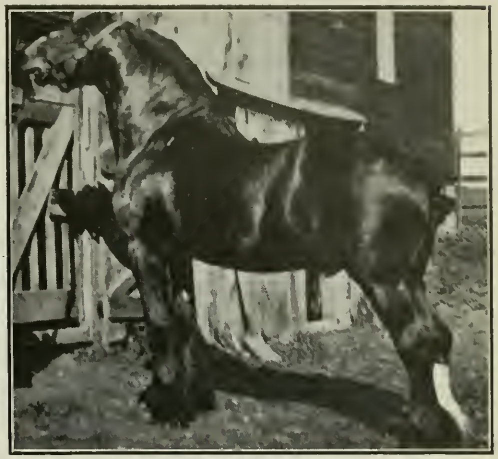
Knight of Maryfield—7760—Smith & Richardson, Columbus.

British Hero—20573—W. Colquhoun, Mitchell.

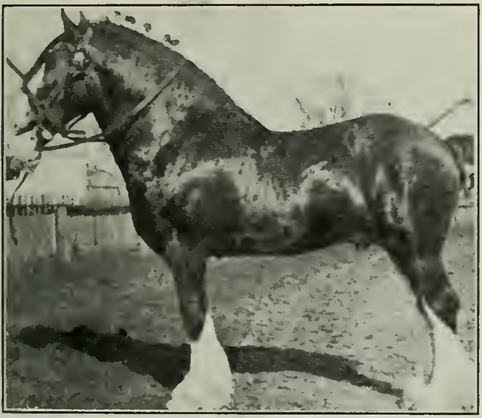


Riverbank—17954—W. Colquhoun, Mitchell.

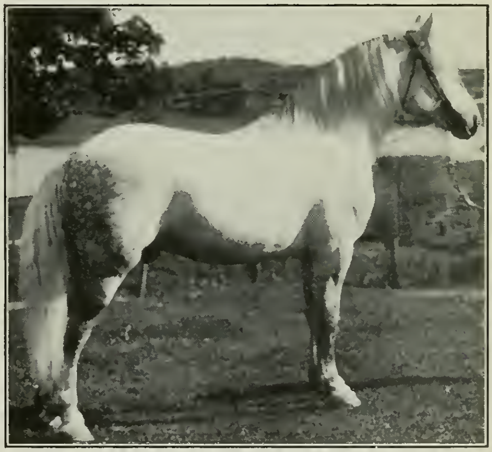
Honest John—12083—J. & W. Gray, Blyth.



Dunure David—13674—W. D. Benstead. Alvinston.



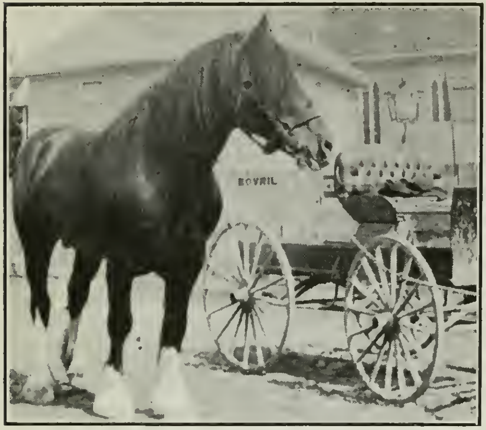
Prince of Greenhall—11684—A. Hewson, Malton.



Bricanam—6565—Anderson & Arkles, Campbellford.

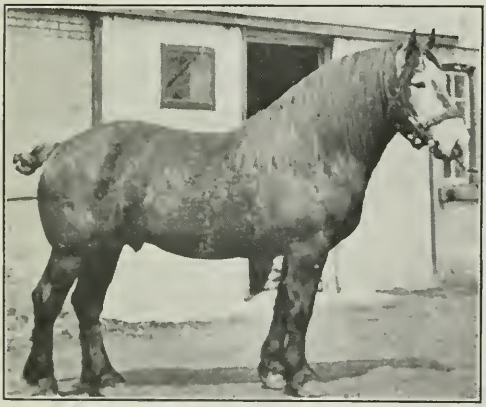
Solidity—18367—Howard & Eby, Downsview.

Hurleur—1599—J. F. Mulville, Westport,

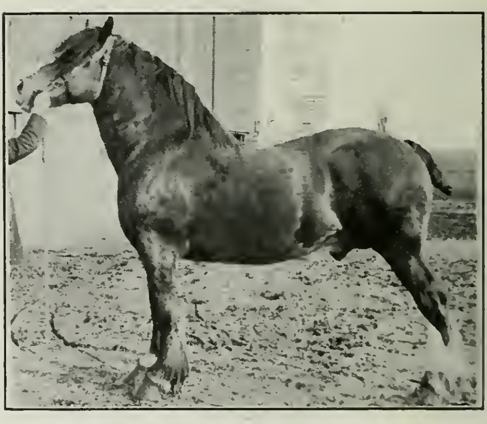


Aurelian—18325—Brandon Bros., Forest.

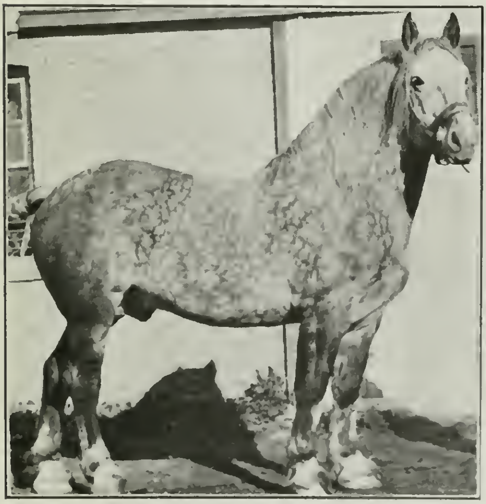
Village Swain—15167—Smith & Richardson, Columbus.



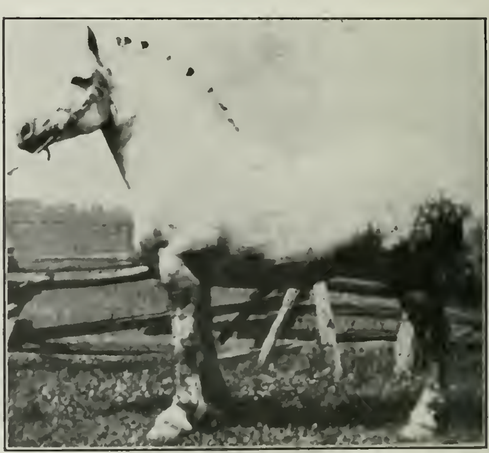
Nard—6382—R Graham, Renfrew.



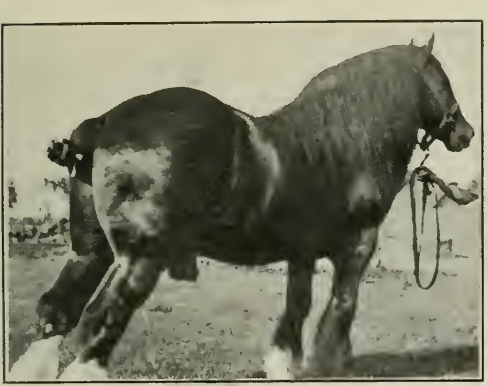
Lord Gray—12390—A. B. Erskine, Parkhill.



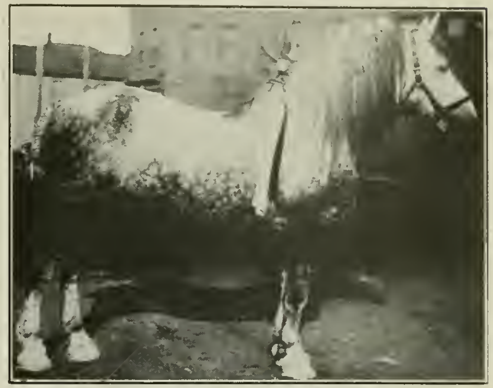
Jabot—3139—T. J. Berry, Hensall.



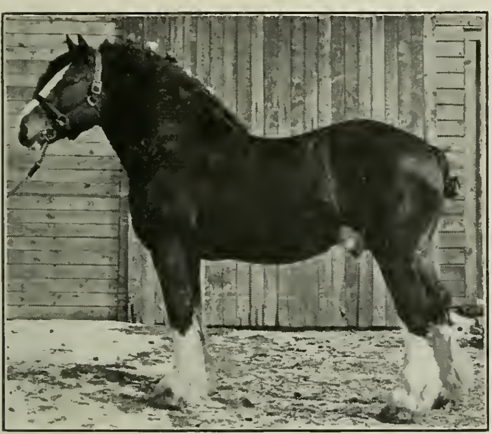
Dandy—5542—R H Livingstone, Woodbridge.



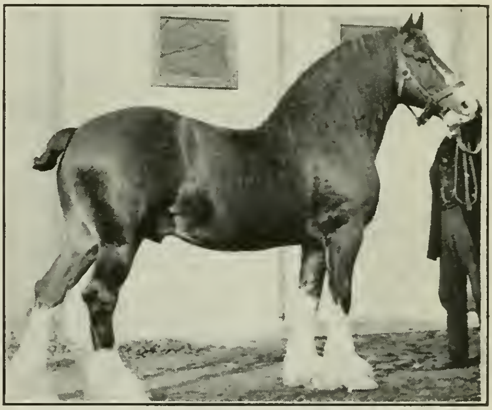
King Junior—1068—Johnston Bros., Croton.



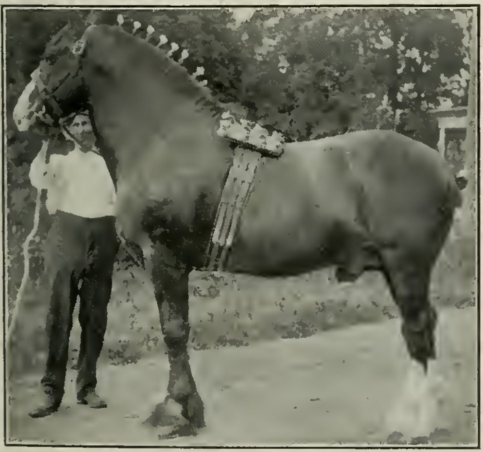
Lassis—3920—Herald & Ratz, Tavistock.



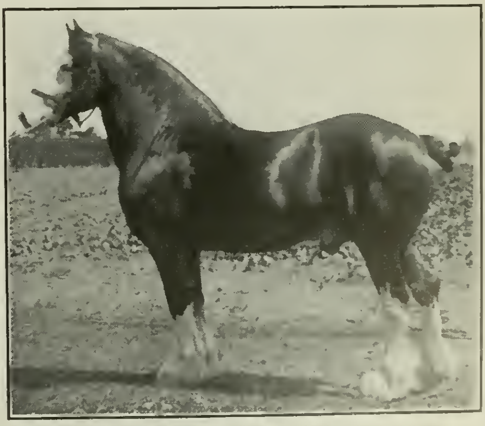
Pacific—13173—W. L. Mossip, St. Mary's.



Commodore—9596—T. J. Berry, Hensall.

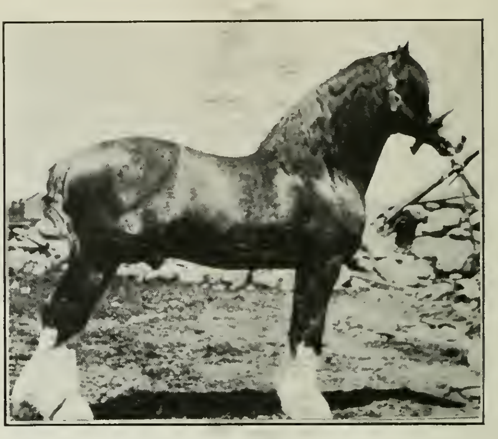


Dunnottar—13906—Telfer Bros., Milton.

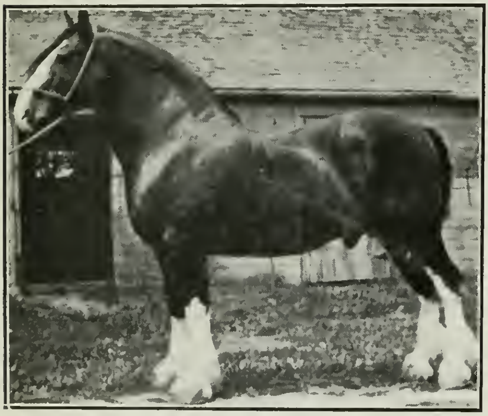


Craigie Baronet—17599—M. Forsyth, Mitchell.

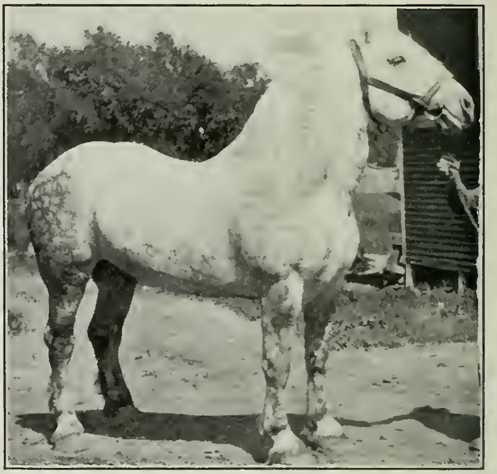
Kent Favorite—16472—H. Reidt, Shakespeare.



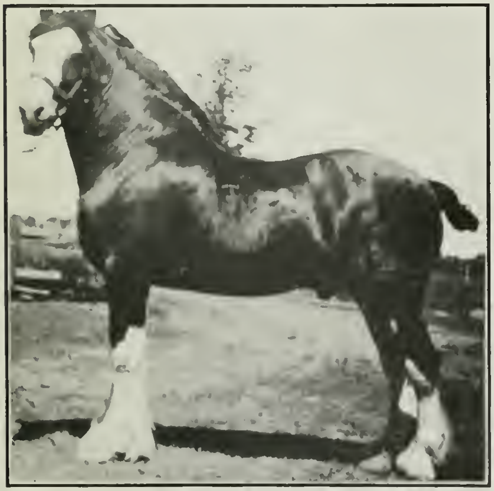
Pride of Glencairn—10377—J. E. Ellis, Blyth.



Belle Boy—8524—N. Wagg, Claremont.



Kodi—4462—J Buckingham, Wallaceburg.



Knockinlaw Revolt—15482—J. Gray, Atwood.

Isly—3066—J. Hume, Georgetown.

Ontario Department of Agriculture

SIXTEENTH ANNUAL REPORT

OF THE

Vegetable Growers' Association

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO
Printed by CLARKSON W. JAMES, Printer to the King's Most Excellent Majesty
1921

Printed by
THE RYERSON PRESS

To His Honour, LIONEL H. CLARKE,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I herewith present for consideration of your Honour the Annual Report of the Ontario Vegetable Growers' Association for 1920.

Respectfully yours,

MANNING W. DOHERTY,

Minister of Agriculture.

TORONTO, 1921.

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Ontario Vegetable Growers' Association

OFFICERS, 1921

President: Maurice May, Tecumseh.
First Vice-President: G. H. Poad, London.
Second Vice-President: W. H. Stewart, Aylmer, E., Que.
Secretary-Treasurer: J. Lockie Wilson, Toronto.
Auditor: A. H. MacLennan, Toronto.
Executive: The Officers, and Henry Broughton, Sarnia; G. B. Hellerman, Waterford, and A. H. MacLennan, Toronto.
Representative to Canadian National Exhibition: F. F. Reeves, Humber Bay.
Representative to Central Canada Exhibition: William Trick, Ottawa.
Representative to Royal Agricultural Winter Show: F. F. Reeves, Humber Bay, J. Lockie Wilson, Toronto, and A. H. MacLennan, Toronto.

FINANCIAL STATEMENT.

December 1st, 1919, to November 30th, 1920.

Receipts.

Balance on hand from 1919	$83 87
Grant	900 00
Membership fees	117 50
Interest	9 51
Garden competition entry fees	46 00
Field crop competition entry fees	296 00
Debit balance	40 47
	$1,493 45

Expenditures.

Auditor	$5 00
Rent of Typewriter; Ottawa	1 00
Convention dinner, Ottawa	71 25
Assistants at Convention, Ottawa	10 00
Printing	15 00
Postage	10 00
Petty Cash	5 00
Refund on celery, C. W. Dempsey	1 00
Expenses, Directors' and Executive meetings	235 20
Prizes in Field Crop Competition	780 00
Prizes in Garden Competition	360 00
Total	$1,493 45

Maurice May, Tecumseh,
President 1921.

Ontario Vegetable Growers' Association

SIXTEENTH ANNUAL CONVENTION.

The Annual Convention of the Ontario Vegetable Growers' Association, held at the Central Y.M.C.A., College Street, Toronto, on Thursday, February 3rd, 1921, was a distinct advance on all previous Conventions both as regard attendance of delegates and the interest taken in the addresses and discussions.

PRESIDENT'S ADDRESS.

W. S. Eborall, Beamsville.

It is a great pleasure to me to welcome you to the Sixteenth Annual Convention of the Ontario Vegetable Growers' Association. I am sure that you will derive lasting benefit from the addresses that will be delivered. I hope you will all ask questions, as that is the only way to get at the real facts and the best way to make this Convention successful. From what I can gather, the first meeting of the Ontario Vegetable Growers' Association was held in the Parliament Buildings on March 25th, 1905. I visited the Ottawa Branch in 1919, and after looking over the beautiful garden of Mr. Mulligan, a meeting was held and various questions discussed. The question of the Convention came up, and it was the unanimous wish of the meeting that the Convention should be moved around from place to place. I must say in fairness to Ottawa that they did not mind where it was held, as some suggested Ottawa and some London. The matter was brought before the Board of Directors, and it was decided to hold the 1920 Convention in the Capital City. It was one of the best Conventions we ever had, both in numbers and enthusiasm; we were taken in charge by the Ottawa Branch from the time we landed until the close. Their hospitality to us all was unbounded, and I should like their delegates who are with us to convey to them the very best thanks of the Ontario Vegetable Growers' Association for their generous treatment.

A critical year was the one just closed, and in many parts of the world there was a scarcity of food. The high cost of living was taxing the pockets of us all, so the only thing to do was to get more production, especially as far as food was concerned. I think we all realized that it was necessary for us to do our utmost to increase production, and so we put all there was in us, not thinking of profiteering or what extra profit we would get. The whole country put forward every effort and you know the results that the harvests were bountiful. We should thank God for the bountiful harvest. What would have been the result had we had bad crops, one can only surmise. We know that the first necessity of life is food. At the present time there are a lot of unemployed. and with the high rents people are suffering enough. If there had been a scarcity of food what would have happened? We saved the situation, but it was not done by working six or eight hours a day, but from daylight till dark.

Mr. MacLennan and myself were appointed to do campaigning work, and together we got results. I think you will appreciate our efforts, for I believe to-day that the Ontario Vegetable Growers' Association is in a healthier condition than it has been in for some time. I started out in this country as a pioneer and we were not daunted, kept right on, cleared up our land, and are now reaping our rewards. And so with this organizing work; I never looked back. I do not claim to have done much myself. Mr. MacLennan put his whole heart into it, and in many cases got the results, so I say together we did it. I trust that this work will still go on, or, at any rate, we should try and see that what we have we hold.

When you did me the honor of electing me as your President, I think I told you my policy was more branches and more members. I could see by the meetings that members were getting fewer, not from lack of interest as much as circumstances over which they had no control. As you know in war time when the boys were away fighting over there, it took all the time we had to look after our various businesses; there was very little time for anything else and we lost interest in things that were necessary for our welfare. In 1918, the year I took office, there were 13 Branches with 559 members, and Beamsville and St. Catharines were added that year. In 1913 the membership was 986, and in 1920 we had 23 Branches with a membership of 1,132.

I did not have the pleasure of attending the last Directors' meeting through an oversight on my part. I mistook the date and landed in Toronto two days late. But I believe a committee was appointed on the revision of the Tariff, and no doubt those selected would place the matter fairly before the Commission and report at this Convention.

I have one suggestion to make, and that is, I think if we could hold an Annual Convention about the 15th of November or some time when the Horticultural Exhibition is on, it would not only give the delegates an opportunity to visit the exhibition, but there would be in town at that time gentlemen who would speak at the Convention. The outdoor work is fairly advanced at that time, and we should be able to come in right after our season is over and should be able to talk over the past season's work better than we could in February, as one is apt to forget some of the questions we like to ask.

P. May: In our district we are very busy in November. I always manage to be at the Directors' meeting at that time but it is at a sacrifice, but I would not object to having the Convention at that time if it was for the good of the Association.

J. J. Davis, London: We used to have the Convention about the 13th to the 15th of November, but we found it was a very critical time for gardeners to come. The celery was not yet in and oftentimes the cabbage was not harvested. It was getting pretty close to the end of the open season, and the gardeners came up here leaving their things out and when they got back they perhaps found things frozen up. Taking everything into consideration, I think it is better to hold it at this time of the year than in November.

J. Lockie Wilson: The Conventions were held in November for some years, and it was the consensus of opinion that it would be better to hold it in February.

A discussion ensued on the question of changing the districts from five to three.

J. Lockie Wilson stated that the directors had gone carefully into the matter and had found that with five districts, five sets of judges, and the extra travelling entailed it was too expensive. There was a debit balance of some $40 last year.

REPORT OF SECRETARY-TREASURER,

J. LOCKIE WILSON.

Our Association is to be congratulated on the work done during the past year, which was a fairly successful one for market gardeners, who were in a position to have their crops ready for market early in the season. Later on, however, the supply became greater than the demand and prices materially slumped, and, owing to the high cost of containers and labor, there was little profit left for the grower on his late crops when his overhead expenses were considered. The difficulty in securing efficient labor during the year materially handicapped growers, and the cost of coal for greenhouses was almost prohibitive. A few weeks ago I saw in the streets of Toronto young men lined up four deep for three-quarters of a block waiting to purchase tickets for a picture show.

To-day many of these same chaps are standing in the bread line anxious to secure a loaf to prevent starvation. It would seem a difficult problem to separate these men from the city and attach them to the farms where an honest day's labor, three square meals and reasonable pay await them. But ten hours a day does not appeal, six or eight is what is urged and, even at that, work outside the cities' boundaries does not seem alluring.

In the army of unemployed are doubtless many of the brave lads who fought in Freedom's cause, gave up good positions and sacrificed several years of their young lives that Britain's flag, our flag, might continue to fly over peaceful homes. To them the country owes a debt that can never be repaid, and they must receive our special consideration in these strenuous days. Many of them, through physical disability, are unable to undertake the manual labor necessary on a Canadian farm.

Many new branches of our Association were formed in 1920, and the membership is the largest we have yet had. The entries in the crop and garden competitions were greater than ever, and their popularity is steadily increasing. I would suggest, however, that a change be made in the methods of conducting these owing to the expense entailed in freight and express rates. In the past the rules required that the prize winners in the crop competitions should exhibit at the Canadian National, Central Canada, Kingston Exhibitions and the Western Fair. In many cases, the best samples of the gardeners' crops had been disposed of, the quality of the exhibits was sometimes not up to the standard, and the express charges were paid on vegetables which were in bad shape on their arrival at the different fairs. As you are doubtless aware, the rates of the carrying companies on vegetable as well as other products have been greatly increased, and the amount at our disposal for this purpose being limited, there will, of necessity, have to be a curtailment.

I would respectfully recommend that the prize winners in the different parts of the Province be obliged to exhibit at the Canadian National Exhibition only, and those who wish to show at the other fairs might enter for the substantial prizes offered at London, Ottawa and Kingston, and that the branch located at each of these centres be requested to look after and put up the exhibits.

I would suggest that a change be made in the length of time our Vegetable exhibits are obliged to be held, particularly at the Canadian National Exhibition, which lasts over two weeks. There is no difficulty in keeping our show up to the standard for one week, but when they are kept over that time the vegetables rapidly deteriorate and the expense of renewing same is considerable. If the

Ontario Horticultural Societies agree to put up an exhibit in 1921 it might be arranged to have the flowers during the first week and the vegetables the second week of the Exhibition. This proposition, I believe, will meet with your approval.

REARRANGING DISTRICTS.

It will also be necessary to rearrange the division of the Province for the Vegetable Crop and Garden Competitions. There are now five districts and, as the Federal Government grant has been withdrawn and is given only for the crops grown for seed purposes, I would suggest that the Province be divided into three districts, covering the following branches:

1. Belleville, Kingston, Ottawa and Peterborough.
2. Beamsville, Clinton and Louth, St. Catharines, Waterford, Simcoe, Brantford, Toronto, Fonthill, Stamford and Burlington.
3. Blackwell, Petite Cote, Sarnia, Sarnia Independent, Stratford, Tecumseh, Leamington and London.

In previous years six crops were selected for the crop competitions, viz., onions, tomatoes, celery, potatoes, cabbage and melons. Melons, in particular, have not proved good shippers, and arrived at the exhibitions either too green or too ripe. Cabbage from the prize-winning fields were largely disposed of before exhibition time. I would recommend that these two crops be dropped from our competitions and prizes be offered only for celery, onions, tomatoes and potatoes.

Formerly our judges examined the gardens in the competition at two different periods. This has proved too expensive a plan, and I would recommend that the gardens in the competitions be judged once only and that the inspection be done at a time best suited for the different districts. This will be a great saving in the cost of travel and per diem expenses of judges employed to do the work. I trust that the recommendations will meet with your approval.

Shipping tomatoes and other vegetables in baskets to exhibitions has not proved a success. Many of them are broken on their arrival at the exhibitions and their contents damaged. The express service is so congested at that time that little care is taken with the shipments, which are piled one on top of another in cars and trucks and great damage caused thereby. I would recommend that competitors in future ship their products to exhibitions in any kind of container they desire, provided that there is sufficient quantity to fill an eleven quart basket, which will be provided by the Central Association and the vegetables packed in them by those in charge.

Your Board of Directors, in order to encourage the branches, authorized the payment of prizes to those showing the largest increase in membership. Old societies are to receive $10, $8 and $5, and new ones $15 and $10.

Two notices of motion, as follows, were received and dealt with at the annual meeting: (1) That the number of the Executive be increased from five to seven. (2) That the membership fee to the Central Association be increased to 50c. The decision of the Board was that the number of the Executive remain at five, and that the fee to the Central Association, commencing December 1st, 1921, be fifty cents per member.

The Association owes a debt of gratitude to the officers, directors and members of the Ottawa Branch for the assistance given us in making the Convention held in that city last January, the finest and most successful we have ever had. Their hospitality was unbounded.

I trust, as in the past, that the Convention of 1921 will fill our members with enthusiasm for the strenuous years that are ahead, and, on my own behalf, I wish to thank you for the kindness always extended to me as your Secretary and Managing Director.

REPORT OF THE VEGETABLE SPECIALIST FOR 1920.

A. H. MacLennan, Toronto.

The work of the Vegetable Specialist this past year has been somewhat similar to that of the past two years. A great many lectures were delivered on gardening at the Agricultural Representatives' Short Courses, and meetings of Horticultural Societies and Vegetable Growers' to bring more closely the work of the Department to the attention of growers, both professional and amateur. Three day Short Courses were also held at a number of the vegetable centres during the month of February. These were quite largely attended by an average of from 25 to 40 commercial growers. The topics most suited to the districts were discussed by men who had made a success in some particular line. Charge was taken of the Short Course in Vegetable Growing at the O.A.C., Guelph, during the first part of February. The fourth year class was also given a series of lectures on commercial market gardening during the winter term.

During the past summer field days were held at all of the important centres for gardening during the month of August. Dr. Stone, O.A.C., Guelph, and W. A. Ross, Federal Department of Entomology, were present with us at each one to give instructions.

During the spring about 100 acres of early cabbage and cauliflower were looked after for the control of cabbage root maggot, and in all cases the work was successful. In not one case did we have less than 90 per cent. of a crop. This year has distinctly shown that this treatment is the only commercial method that will give satisfactory results in the control of this insect in commercial fields. A certain amount of work was done on onion maggot, but as yet we have not succeeded in making this control as perfect as we would like, as the adults did not appear until fairly late in the season and in many cases we were not notified of their presence until too late. However, next season we hope to be able to control this pest also. Celery blight was not prevalent this year and did not give us much chance to work on the control of it by means of the dust spray. The Tarnished Plant Bug was nearly as destructive as usual; the Black Leaf "40" treatment has not proved quite as satisfactory as we would like, but we hope next year to overcome the difficulties encountered. We hope to try out the use of hydrated lime blown into the heart of the plant. This has proved satisfactory in a small way. A small amount of onion thrip was present but did not do much damage. We spent considerable time working on a machine to take care of this pest and also the onion blight which we hope to have a chance to demonstrate with next year. This machine will cover a strip of 45 rows on each side of the centre and so will save much destroying of the crop. Greenhouse Leaf Tier was also controlled in a number of floral establishments, using 1 oz. Soluble Sulphur, 1 fluid oz. Black Leaf "40," 6 gallons water. This year a number of commercial florists have asked for assistance. This is work which could be made much more effective in the future, as it could be worked in with vegetable greenhouse work.

Small quantities of spinach and pea seed were distributed among the growers. This seed was produced at the Plant Breeding Station, Fort William, by Mr. W. R. Leslie. The spinach seed has given very satisfactory results especially where sown thinly; in fact the plants are so much larger in growth and remain so tender even when the seed stock appears that the growers are asking for a much larger supply than we can possibly obtain. The pea seed was mixed in variety, but showed strong vitality and productiveness. It might be well to make arrangements for a larger supply of spinach seed to be grown.

Most work was done this summer in connection with commercial fertilizers; the scarcity of manure has become so great that it is necessary for the growers to turn to commercial fertilizers for the growing of their crops. For this reason certain growers in each section were given 125 pounds of fertilizer, which was to be placed on one-eighth of an acre. This work was done as much as possible in connection with the local Branch of the O.V.G.A., the director of which was given the handling. While some very definite results have been obtained and much good has been done there are certain features that will need changing another year. We conducted about 180 of these experiments. Owing to taking over the potato work it was not possible to give as close personal attention to this matter as I would have preferred; in some cases, even with the definite instructions given, the grower failed to follow them out and the experiment was a failure. However, another year, this can be overcome and it is a consensus of opinion of many of the growers that this work is one of vital importance to them and they desire its continuance next year.

Field of Irish Cobblers in full blossom near Peterborough.

The fertilizers were applied and tested with a variety of crops and soils, varying in the latter from light sandy loam to a heavy clay loam, along with a varied application of barnyard and green manures; also as a sole fertilizer. The best results were obtained on soils containing the most humus, as this type of soil has the greatest percentage of capillary water-holding capacity, which is of vital importance for the quick dissolving of the soluble fertilizer, and making it readily available to the young growing plant. Climatic conditions and the water-holding capacity of the soil play an important part in obtaining the best results from chemical fertilizers. This was plainly demonstrated last spring with the exceptionally dry weather, as soils with the least amount of humus present gave the poorest results; while the soils with the most humus gave the best results, and this can only be attributed to the moisture holding capacity of the soil and its quick dissolving of the fertilizer.

The following results will demonstrate the advantage of humus to fertilizer:

P. A. BELL, Humber Bay:

Celery, 4-8-4, rate 125 lbs. per ⅛ acre. Soil, black, loam; subsoil, quick sand. Applies 70 tons per acre of horse manure per annum. Grown celery for twelve years on same plot. Celery planted 8 in. x 8 in. x 2 ft. 5 in. The commercial fertilizer showed a more rapid growth and development, darker green leaves, and with decidedly more crispness and quality. The final result in favor of the fertilized plot was a crop of 280 dozen heads of celery being placed on the Toronto market ten days earlier than the non-fertilized plot, and selling at $1.75 per dozen, or 75c. per dozen more than the unfertilized.

W. BETLER, Beamsville:

Potatoes, Cobbler. Soil, sandy loam; subsoil, clay. Heavy application of slaughter-house manure. Lime—2 tons per acre in fall. Potatoes grown three years. Obtained first prize for Field Crop Competition. Use 4-8-6 commercial fertilizer at rate of 125 lbs. per 1/8 acre. The fertilized plot showed a darker and healthier colored plant and stronger growth over check plot, the final result being that the fertilized plot of potatoes were in flower and ready to dig seven days earlier than the unfertilized, and produced ten bushels more per 1/8 of an acre.

HENRY BROUGHTON, Sarnia:

Potatoes, Cobbler. 4-8-6, rate of 125 lbs. per 1/8 acre. Soil, black sandy loam; subsoil, clay. Manures heavy each year with barnyard manure, and soil rich in humus. Has grown potatoes on same plot for fifteen years. The fertilized plot gave larger plants with denser tops and darker, healthier color foliage. Very little extra earliness was observed, but a difference in yield of 300 lbs. per 1/8 acre in favor of fertilized, selling at $2.00 per ninety pounds.

F. O. REEVES, Burnhamthorpe:

Potatoes, Cobbler. 4-8-6, rate of 125 lbs. per 1/8 acre. Ten rows of potatoes, 600 feet long. Fertilizer applied after planting and cultivated into five of the ten rows. Five rows no fertilizer applied, and no manure on any of the ten rows. Fertilized plot yielded twelve bushels to the row and were dug on August 7, 1920. Sale price, $2.75 per bushel. Unfertilized plot yielded eight bushels to the row.

F. O. REEVES, Burnhamthorpe:

Potatoes, Cobbler. Three rows of potatoes, 600 feet long. First row, check; second row, 400 lbs. tankage; third row, 600 lbs. tankage. Results: first row, four bushels potatoes; second row, six bushels; third row, eight bushels.

The difference on Mr. Reeves' plots, which were in the same field, was due to the fact that the one plot had been manured the previous year.

The above-mentioned experiments will suffice to show conditions under which fertilizers give the best results. It would be possible to mention several more experiments from all parts of the Province, but as a list of experiment results are tabulated, it is unnecessary to take up space and time here.

The combination of artificial fertilizers with "cover crops," especially vetch and rye, have given most satisfactory results. This is due, no doubt, to the fact that "cover crops" act as a substitute for barnyard manure in supplying humus to the soil. Hence humus is a primary necessity, and as barnyard or green manure crops are the only means of supplying this valuable and indispensable constituent of the soil, commercial fertilizers can only be applied profitably when used as a supplement to barnyard or cover-crop manures.

The reason for emphasizing the importance of humus to the soil, and the effect of fertilizers on such soils is because this point has been impressed on us by the results obtained with the various experiments. But the most important reason is that this conclusion regarding humus cannot be made too plain and clear to the growers, as the vast majority are laboring under the false impression that fertilizers are supposed to take the place entirely of barnyard manure, and owing to the fact that commercial fertilizers are not fulfilling this requirement they are condemning their use.

We do not wish to convey the idea that no results were obtained on soils not heavy in humus, as this is not the case, for results of some degree were observed in most instances, but I think it is safe to say that at the present price of chemical fertilizers it is not a commercial proposition on the poorer types of soil, except in the use of nitrate of soda in small quantities.

The past summer data was collected from each grower doing fertilizer experiments regarding his soil: that is, amount of manure used per annum, rotation of crops, method of planting, insects and diseases attacking the crop, general observations of growth and the yields. The object of these data is to keep track of the true merits of the fertilizer. A great variation in the method of planting was noticed, which made a vast difference in the number of plants per acre and the amount of plant food required in the form of soluble fertilizers to be sufficient as a supplemental manure to make an appreciable increase in the growth and development of the plants. For instance, tomato plants vary from 2,500 plants in the ordinary field method to 7,000 plants cultivated under the intensive staked system. Celery varies from 7,000 plants in the ordinary single rows to 64,000 plants in bed system. With these variations it is quite obvious that a standard quantity of fertilizer as we used for tomatoes (5-12-0) or celery (4-8-4), at the rate of 1,000 pounds per acre, is not sufficient for all methods of planting, besides being an unfair test to the grower. This difficulty could be overcome another year by seeking from the grower, at the time he puts in the application for fertilizer, his method of planting the particular crop he desires to experiment on.

Herewith are given standard commercial fertilizer formulas which seem to give the best results on the crops mentioned. Unless the grower will make his own formulas according to his soil requirement, such formulas should give satisfaction.

Celery, 4-8-4	1,000 lbs. per acre.
Cauliflower, 4-8-4	1,000 lbs. per acre.
Potatoes, 4-8-4	1,000 lbs. per acre.
Early Cabbage, 4-10 or 5-12	1,000 lbs. per acre.
Late Cabbage, 4-10	1,000 lbs. per acre.
Tomatoes, 4-8-4, or 4-12-4, or 4-12-3	1,000 lbs. per acre.
Onions, 4-8-4	1,000 lbs. per acre.
Melons, 4-10	1,000 lbs. per acre.
Corn, 4-10-4	1,000 lbs. per acre.
Beets, 4-10-4	1,000 lbs. per acre.
Lettuce, sulphate of ammonia	1,000 lbs. per acre.

It has been thought that a great deal of assistance would be given to the growers if a Corresponding Service Bureau was organized in co-operation with either the Federal or Provincial Departments of Botany and Entomology, whereby every two weeks during the vital growing months of the year a card was sent to the grower warning him that certain insects and diseases were due to appear, giving instructions where to look and the necessary precautionary and remedial methods of control. A spray calendar especially tabulated for the vegetable growers would be a great asset and would simplify the card system, as reference numbers could be used to designate the method of control recommended.

Herewith is attached report of work carried on by Mr. G. M. Stirrett at Burlington under Prof. Caesar. Funds for this work were supplied by the Vegetable Specialist. A considerable amount of experimental work was started, in conjunction with Mr. W. A. Ross, of Vineland, and Dr. R. A. Stone, of Guelph, which has not as yet been carried far enough to report on.

REPORT OF THE WORK ON THE CABBAGE MAGGOT AT BURLINGTON AND VICINITY.

G. M. Stirett, Burlington.

This work was carried on under the supervision of Prof. Caesar, the Provincial Entomologist, and was a continuation of last year's study of the life history, habits and methods of control of the cabbage maggot. The object is to make such a thorough study of this insect under varying conditions of weather that all the important points of value in its life history may be discovered and the simplest and safest and most effective method of control determined.

The problem is not an easy one, because the adults of this insect do not act normally in cages, and because weather conditions some years are such as to nullify all, or nearly all, one's experiments through the destruction of a very high percentage of the insects themselves. Much progress, however, has been made, and nearly all the important points have now been elucidated. The chief things left yet to determine definitely are: First, the exact time when the first treatment of early cabbage and cauliflower should be made. If this can be determined definitely, it will probably mean a saving of one-third of the total cost by enabling two treatments to do the work of three. Second, the weakest strength of corrosive sublimate that can be effectively used. Third, to determine by further tests the method by which corrosive sublimate effects control. Fourth, whether it pays to treat radishes with corrosive sublimate because of the cost and the low price obtained for these vegetables.

A little further work is also necessary upon the efficiency of corrosive sublimate as a protection for seed beds for late cabbage and cauliflower.

During the season's work approximately 50,000 early cabbage, more than 8,000 radishes, and several seed beds of cabbage and cauliflower, including many thousand plants, were treated with one or other of the various substances used in our tests. All the radishes at the end of the experiment were pulled and examined individually.

In tests on the effect of corrosive sublimate upon eggs, more than seven hundred eggs were collected, treated and examined under the microscope.

The chief results that can be drawn from the work this year are:

1. Corrosive sublimate is much the most effective and safest substance yet found in the control of this pest.

2. A strength of 1 ounce to 8 gallons of water (1 to 1,280) gives somewhat better results than 1 ounce to 10 gallons of water (1 to 1,600), though we are not sure that the difference is sufficient to justify the extra expense of the stronger mixture.

3. Two treatments are apparently quite effective for control, provided that the first is given soon after egg-laying begins, and the second five days later. The only

difficulty is to determine clearly, so that every grower can rely upon it, the date when egg laying begins. This point, as said above, we expect to be able to settle next year.

4. The addition of a mixed fertilizer did not have any noticeable effect upon the results.

5. Corrosive sublimate appears to prevent injury in four ways: First, it kills nearly all the eggs in moist-treated soil; second, it kills many of the smaller larvæ in contact with such soil; third, it causes many of the larger larvæ to pupate prematurely; and fourth, it repels larvæ and causes them to migrate from treated soil and plants, and so perish.

Two treatments with corrosive sublimate at 1 to 1,280, one ounce to eight gallons of water, will give commercially clean radishes; but, as said above, it is doubtful whether, until the price of corrosive sublimate ($2.50 per pound) is greatly reduced, treatment will pay for such a low-priced crop.

REPORT ON SEED OBTAINED FROM THE PLANT BREEDING STATION, FORT WILLIAM.

W. R. Leslie.

Spinach (Viroflay).

N. Sanderson, London: Growth and yield of spinach was fully as good as any we had and if anything stood longer before going to seed, but the leaf was too plain to be a good seller.

T. J. Fee, St. Catharines: Spinach was planted the same day as the other spinach (April 24th), and received the same attention, and would safely say that it would run 25% heavier in yield. Got 10 tons at $35 per ton from one acre.

Frank F. Reeves, Humber Bay: Spinach very much heavier in yield and did not go to seed so quickly but still tender and edible after it had grown to a large size.

W. J. Cooke, Cataraqui: Spinach gave heavier yield than other but variety (Victoria) not suited to the market.

Geo. Bycroft, London: Viroflay spinach did not do as well as home grown Giant Thick Leaf by at least 80%.

Peas.

N. Sanderson, London: Peas were not as numerous as some others grown beside them but their size would easily bring their crop up to fully as heavy as the others, furthermore their quality was of the finest.

W. S. Eborall, Beamsville: English Wonder peas did very well, making good growth and cropping very well, but had no others for comparison.

F. F. Reeves, Humber Bay: Peas very numerous and gave heavy yield, comparing very favorably with the others. Varieties were a little mixed.

Geo. Bycroft, London: Not growing other peas was unable to compare the Gradus and English Wonder. Would say, however, that the English Wonder especially did very well and gave a very heavy yield.

W. J. COOKE, Cataraqui: Peas a failure owing to weather conditions. They were sowed rather shallow in light land and it was very dry afterwards which affected the germination and the experimental value of the effort was lost. Have every reason to believe, however, that the vitality was excellent.

R. CARTER: Has anything been tried out along the lines of checking the onion maggot by using formaldehyde? I understand they have been trying this out in the United States.

Viroflay Spinach.

A. H. MACLENNAN: We tried that out here for two or three years. The best work on the onion maggot has been done by Gibson of Ottawa. His remedy is:

¼ oz. sodium arsenate.
1 pint molasses.
Boiling water.

The boiling water and the arsenate is put together and the molasses added. He takes a strip about 6 or 8 ft. wide anglewise across the patch and working that in sections, after the onions are out of the ground, he tries to catch the flies. We have tried out practically all of the American and Canadian treatments and that has been the best so far. If any of you are troubled at any time, if you will just drop a post card to me at the Parliament Buildings, I will be only too glad to help any one at any time if there is any possibility of my being able to do so. I have tried to keep abreast of the times in respect to the various tests going on.

R. Carter: I have taken on some land which used to be the Russell Motor property, which is alive with some kind of maggot.

A. H. MacLennan thought these were probably wire worms.

R. Carter: This is a little white maggot which eats up everything.

A. H. MacLennan: This is another of the same tribe, and that trap will catch it the same as onion maggots. They are all cousins.

CO-OPERATIVE CANNING.

Mrs. A. V. Greer, Toronto.

I am glad to have the opportunity of saying a few words to you on the subject of Co-operative Canning. With thousands of bushels of fruit and vegetables going to waste annually in this very productive Canada of ours this seems an opportune moment to discuss this great problem.

In the United States conditions are very similar and within the past few weeks there has been organized in the City of Chicago, Ill., what is known as the Co-operative Canning Association. This Association intends to take care of the surplus by canning. Why not put on a campaign of this kind in Canada?

Until the war period, gardening was not indulged in to any great extent in Ontario. One could travel for miles without seeing any signs of a garden. Perhaps if we cared to travel away to the "back fifty" on the farm we would find a small acreage set aside for the growing of potatoes, beets, carrots, etc., but this was an exception, rather than the rule.

During the years, 1916, 1917, 1918, when that threatening hunger cloud hung over the world and the cry for increased production was heard everywhere, the growing of vegetables became more popular. In fact, almost everyone became enthused with the idea of gardening, from grandfather and grandmother to the wee small boy or girl.

In our own department, seeds were freely distributed through our Women's Institutes to the girls on the farms. Blue prints were sent with these seeds showing how to plan the garden to the best advantage. Prizes were offered by the Institutes, not only for the best garden but for the best display of canned vegetables in glass containers. Until this time the canning of vegetables by the average individual was practically unknown. Tomatoes, beans, peas and corn were canned in canning factories but not in the home.

The Department of Agriculture at this time put on many attractive demonstrations in the line of work showing how fruit and vegetables could be taken care of in the homes by canning and again people became enthused with the idea of canning. As some one has put it very quaintly:

Little Miss Muffett will sit on the tuffet
  And giggle in merriest glee,
For she'll not be needing to buy stuff for feeding—
  "I'll can it this summer," said she.

Every one, of course, thought of canning this surplus and sending it to the boys who were then in France. Many shipments were sent over but a great deal was lost in transit by breakage and spoilage.

In 1917, the Department of Agriculture decided to equip a small Community Canning Centre, at Parkhill, in order to take care of the surplus in a uniform way. The armories in that little town made an ideal place for the work. The upper rooms were used, one for a store room, the other for a reception room, and many a pleasant hour was spent there by the people of the community. On the ground floor was an office, a small packing room with hoist to store room, a large process room and a boiler room. During the season thousands of pounds of fruit and vegetables were taken care of to say nothing of the chicken which was canned in the fall. All these delicious products were put up in tin cans and shipped to the boys.

The Centre at Parkhill was such a success that the following season seven centres were established throughout the Province. It was my privilege, because I had had a good home training and years of practical working knowledge of the art of canning, to be sent to take charge of the Centre at Barrie, and later at Niagara-on-the-Lake. I should like to tell you a little of what was accomplished in these Co-operative Factories, for that is just what they were.

At Barrie we had a splendid building. It had formerly been the meat market on the Public Square. There were two rooms—a process room and a room for the workers—separated by a partition with glass windows showing just what was going on in each room, and an engine room. In the work room were two long tables with marble tops (formerly meat tables), where the women sat to prepare the fruit or vegetables. On the walls hung numerous dish pans, knife racks full of good sharp paring knives, strainers, blanching baskets, spoons, etc. The process room was large and airy, with plenty of light. In this room we had the following equipment: 1 weigh scales, 1 sugar bin, 2 jacketed copper kettles, 2 steel retorts and 2 wooden vats for cooking or processing, 1 sealing machine. We also had plenty of table space in this room, and the tin containers were mostly filled here, the syrup or brine added and then passed along to the sealing machine at the head of the table. In the engine room was a 60 h.p. steam boiler. The steam was generated in the boiler and turned into the retorts, vats and kettle through pipes running from the boiler into the bottom of each; a globe valve was turned to allow the steam to enter.

During the month of August we took care of 7,500 lbs. of raspberries, blueberries, beans, peas, rhubarb, jam, etc. The first of September I was sent to open the Centre at Niagara-on-the-Lake. Conditions here were somewhat different. We had our equipment installed in an old garage and working conditions were not good. However, the fruit was here, plenty of it, and such fruit, hundreds of bushels of peaches, pears, plums, apples, tomatoes, etc.—all ours for the asking. The spirit of giving among those farmers was wonderful. From September 1st to October 31st, we canned 1,800 quarts of tomatoes; 2,100 quarts peaches; 2,000 quarts plums; 1,700 quarts pears; besides making 8,000 pounds of peach jam; 500 pounds vegetable marrow jam and hundreds of gallons of tomato soup.

The women and girls of the town came to the Centre and prepared the products while I did the processing. Sometimes the men came, too, for they were all interested in the work. With the signing of the Armistice our Canning Centres went out of existence with the exception of Parkhill. Through the untiring efforts of Mrs. Wilson, of that town, the Centre has been run as a Co-operative Community Centre and the women of the town and vicinity have brought their produce and done their canning right in the Centre. Some of them prefer to pay for having the work done, while others do it themselves and donate so many cans in return for the privilege. The first year, 1919, I believe the surplus over and above expenses was something like $600. Some of the farmers in the district put in an extra acre of corn or peas and sold to the factory at a small advance on cost. Last August, during the pea canning time, 28 families were represented. The women formed parties, went out and picked the peas, brought them to the Centre, shelled them and canned them, all working together harmoniously. The charge for peas per can was about 10c. Peas to-day are retailing at 22c. The question has been asked why could not Co-operative Canning Factories be successfully operated in the same way? Why not take care of the surplus by canning instead of letting it rot on the ground? Thousands of people are starving to-day even in Ontario. A farm or Community Canning Centre is the solution of the problem. Decayed fruit and vegetables make rich soil but poor farmers. The farmers in the Niagara District laughed at me when I told them of the delicious jam we were making of the peaches that formerly had been left to rot on the ground. Apples, too, are often left to rot on the trees. The possibilities of the apple are great. Every part of the apple can be used. The firmer ones may be canned in a light syrup while the culls may be cut up (with skins and cores) and made into splendid jelly. These are boiled first in the copper kettle then turned into jelly bags and left to drip. The pulp left in the bag may be put through a pulping machine and reduced to a smooth apple butter when boiled down with sugar and spice. Tomatoes, too, yield many products, such as tomato soup, tomato pulp, catsup, chili sauce, etc. What about cucumbers? If you have occasion to buy a bottle of pickles (and many people do), you pay from 20c. to 30c. for a small bottle of gherkins (about ten in a bottle). Even at the high price of $1 per basket, think of the great number of tens in one basket; it is worth while to treat these with a vinegar solution yourself. Try it and see the profit to be made. The equipment required for a Co-operative Canning Centre costs but little. Of course, you may make it an expensive proposition but not necessarily so. Start in a small way. The equipment in our factories averaged about $1,400, boiler included. A good building with storage room is necessary; good, firm floors, good drainage, etc. Pay attention to arrangement of equipment. Plan to save steps. This saves time. Almost ideal conditions at Barrie were spoiled by the sink being placed in the outside room, making it necessary for the processor to walk extra miles per day.

A good plan would be to start with say a 60 h.p. boiler, 2 retorts, 2 wooden vats, 2 copper kettles, jacketed. The retorts are made of steel with swing covers, fastened with steel bolts. There is a steam gauge on the top with indicator needle and a pet cock on side to allow escape of steam. Retort has a steel cage which may be removed. Capacity 30 No. 3 cans, 48 No. 2 cans. These may be cooked at very high pressure and the retorts are especially good for cooking meats, chicken, etc.

The tin containers may be obtained from the American Can Co., Hamilton, also the sealing machines. This machine has to be rented. Rent per year $25.

Then there are wire baskets, dish pans, fibre tubs and pails, weigh scales, etc. but the complete cost would not be very great. Everyone interested must have a truly co-operative spirit. Each one must plan just how much acreage he will devote to the growing of produce. Then it is necessary to have some good way of marketing the product after it is canned. A good home product is always in demand. Grocers, retail and wholesale institutions, even private individuals are eager for good, wholesome, clean, fruit or vegetables.

Above all, have a processor who understands the work, much depends on this.

Below is a list of profits made in canning tomatoes.

No. 3 cans at $45.00 per 1,000	$45 00	
Labels, 1,000 at $2.50	2 50	
Cases at 15c. each (41)	6 15	
Peeling, coring, at 5c. per 14-qt. pail (80)	4 00	
Processor 1-5 day at $6	1 20	
Capping per hundred	1 50	
Fuel	2 00	
62½ bushels tomatoes at 45c. per bushel	28 13	
Labelling at 40c. per 1,000	40	
	$90 88	
Selling price to wholesaler:		
1,000 tins (18c. wholesale price to-day)		$180 00
15 No. 3 cans in 1 bushel—cost of product		90 88
Profit		$89 12

I am told average yield to acre is from 300 to 400 bushels of tomatoes. This would mean a good profit on acreage.

Here is an estimate on peaches:

320 bushels peaches at $1 per bushel	$320 00	
7,680 No. 3 tins at $45 per 1,000	345 60	
800 lbs. sugar at 12c.	96 00	
320 shipping cases at 15c. each	48 00	
7,680 labels at $3.40	26 12	
Labelling at 40c. per 1,000	3 07	
Labor, peeling, etc.	184 32	
	$1,023 11	
Fuel	14 00	
	$1,037 11	
Sale price to wholesaler:		
7,680 No. 3 at 30c. per can		$2,304 00
		1,037 11
Profit		$1,266 89

Why import California peaches grown over $1,000 per acre land at 40c. per tin? Why buy pineapple at 40c.-50c. per can? Yet people in Canada are doing this. Grocers will tell you this. Why buy American goods while our own are rotting on the ground? This is the time for co-operation. Think it over and plan to have more co-operative factories in Canada.

Tomato soup is a product on which there is much profit. One bushel of tomatoes will yield 60 half-pint tins. This tin is selling to-day at 20c. per tin (Campbell's). Wholesale price would be 18c.

60 tins at 18c. per tin	$10 80
60 tins, cost $4.67	4 67
Profit on 1 bushel of tomatoes converted into soup	$6 13

W. J. COOKE: From the experience gained in the past year there is room for co-operative canning, and Mrs. Greer has proved by her address that both in vegetables and fruit large profits could be made on the growers' goods. Not only that, but it goes against the grain of all of us to grow our products and have them spoilt. That is what has happened this year and it could be avoided if we could have small co-operative canning industries formed throughout the country. This is a valuable address for us to think over.

J. Lockie Wilson: This is one of the most important addresses of the Convention. Mrs. Greer is practical and has had large experience in the canning business, and I can assure you you can rely upon her figures. Formerly cheese was made in the individual home, to-day it is made in the community centre. The same with the baking of bread, which is to-day gotten by the farmer from the baker. The community canning centre idea would do away with a great deal of the wasted fruits and vegetables which rot on the ground every year. With all the outdoor and indoor work with which the farmer's and vegetable grower's womenfolk are overwhelmed, what an advantage it would be if community canning centres could be arranged. If the farmers could bring in their surplus products and get them canned in that community centre, what a wonderful relief it would be to the tired mothers in the farm homes of this country.

A Delegate: I had the pleasure this fall of taking a trip with one of the London retailers down through the Leamington district, and his idea in going down was to purchase tomatoes for canning, and he was very much disappointed when he found he was unable to purchase them. It struck me at that time if he was able to take these tomatoes to London and pay the transportation charges, it would be a good thing for the London growers to arrange for the supplying of the local canning demand and save the express charges. I agree with the sentiments expressed by Mr. Wilson with regard to this community canning.

W. J. Cooke: A very much better product could be put out in these small canneries than is ordinarily brought on to the market. Undoubtedly more individual attention could be given these smaller co-operative canning industries than is given in the larger plants. I noticed in the east that we hardly ever see any Niagara grown tomatoes in cans. I asked my grocer how that was, and he said he could get them for me at an extra price. They demand an extra price for Niagara tomatoes, because they consider them better quality. I should imagine fruit and vegetables put up by these small co-operative canners would demand an extra price for the same reason. They would always find a good market locally, because we know that it is going to cost us more and more as time goes on to bring foodstuffs from distances.

J. Lockie Wilson: Canned, dried and fresh fruits are brought in here from California and Oregon, grown on land worth $1,000 per acre, freight rates paid for those enormous distances, and we have to-day men standing in the bread line waiting for something to eat and last fall our farm products were allowed to go to waste and these same men refused to go out and help gather them in.

W. H. Stewart: I attended a convention at Columbus, Ohio, and learned that because of the small price offered by canning companies in the fall the tomatoes were left to rot on the ground. With the outlook for freight rates going up this year, another year we are going to pay about double for canned goods. So it is an opportune time to get something of this kind going in Canada.

Mr. Smith: I have a canning outfit for the individual home, which I would like to show the members. Whilst in Quebec, some months ago, I was taken out to a farm of a vegetable grower who had one of these machines. I became very interested and he promised to show me how to operate it. A little girl of fifteen was canning. For three years in Quebec they have been running an association; every family does its own canning. They sell the farmer the machinery and guarantee that they would market the product. I believe one man financed it the first year, but the third year they took it upon themselves to go into one Association. The Association bound itself to take the complete output of the vegetable grower, agreeing to give him the market price less 5%, which was the Association's commission for placing it on the market. They supply with the outfit the cans and the labels conforming to the Quebec Fruit Law. They supply him with the carton, and all he did was to can the stuff and put it in his barn and wait for the Association to ship it. The man binds himself to give his product to the Association less anything he wants for home consumption. Or if anyone in the community wanted the stuff he bound himself to give the Association the 5% commission on what he sold. The man gets the supplies, cans, etc., at the actual cost of production. It seems to me if Quebec can run that thing successfully there is no reason why we, in the Province of Ontario can not do it. The plant cost only $60 complete, or other sizes could be bought for $30, $100 or $150. This one has a canning capacity of 1,000 cans per day. They have a very special sealer, then you have your topping to do afterwards. It looked to me such a good proposition. And when I saw this down there I made up my mind I would think it over. I told Mr. Bushell and it appealed to him. I am not trying to sell you anything. I simply had this outfit brought up here, am telling you what I think about it, and present it here for your consideration.

Vegetable Growing and Fruit Farming Combined.

When you get to the waste proposition, going through the country towards the fall after the first frost you can find hundreds of bushels of tomatoes lying on the ground. The grower at that season of the year has something more profitable to do than to take care of them. I suppose the question of help for canning would have to be gone into, and after the discussion of the trouble you have in obtaining help, it might be very serious. You certainly would not have time to do it yourselves, but where you had children going to school they could do it, or you could utilize wet days when you cannot work on your land. Of course, if you decided on that you would have to consider the forming of an Association. The man down in Qubec has had no trouble selling his goods on the commission basis. from the consumer's standpoint also there is everything in your favor, as they would get a purer product and if there was a bad can it could be traced back to the actual maker. One farmer in Quebec told me he had gotten nearly three times the returns from two acres of tomatoes that he got from five before.

J. LOCKIE WILSON: This canning outfit should be submitted to an Ontario Government expert, and if it is approved of, I should think there would be no difficulty in getting the machine on the market. But as farmers have been so often duped with machinery which did not work out the way it had been represented, it is only right that this precaution should be taken.

MR. SMITH: My intentions are, of course, to see the Provincial Government. It is not absolutely new through Ontario. I believe Mr. Caldwell, who is a grower at Fort William, has a machine. It is also being used by the Winnipeg Agricultural College.

Moved by Mr. Stewart, and duly seconded, that Mrs. Greer's paper on Cooperative Canning be published by the Department as soon as possible. Carried.

THE GROWING OF TOMATOES AND ITS RELATION TO THE CANNING INDUSTRY.

HARPER SECORD, ST. CATHARINES.

You have me down to say something about growing canning factory tomatoes. I trust no one will be disappointed when I tell you that I have practically discontinued this crop for that purpose. For fifteen years I grew factory tomatoes and during that time acquired some knowledge of them as an early crop, and finding my equipment quite as suitable for earlies as late have found it a profitable change. Now, I do not say that there is no money in canning factory tomatoes, but I have found that I can use my land, time and labor to comparatively better advantage. We have been debating this late tomato question lately in our branch of this Association. We named a committee of ten representative growers to submit their individual findings and this was the result:

The highest man's cost was $278 per acre for producing, at 74 cents a bushel.

The lowest $164 per acre, at 43½c. a bushel.

The average expenditure of those ten men was $211.10 per acre, at an average price of 60 cents a bushel, 375 bushels to the acre, representing a loss of 10 cents per bushel on the operation. The high man's figures illustrate a practical and business deduction, because he paid $400 an acre for his land, hires a manager, and in effect has to charge all expenses to the crop. I don't know what the low man's secret is, but I don't think we, as growers, have a right to contribute to canner's dividends with the unpaid labor of our women and children. If a bricklayer's wife would mix the mortar and his boys carry up the bricks he could build us a house at the same price as he buys our vegetables.

Now with your permission I am going to say something about early tomatoes. That is what I have learned considerable about, and you, as gardeners like myself, ought to be more interested in it than the late crop. It is what I made a record on in the last season, and I have always found it a good money crop. I am going to start with the seed which I grow and select myself. That is the best you can get. No one will be more careful than the man who saves for his own purpose and it at least removes one element of risk—you know what you have got. We want earliness, productiveness, uniformity of fruit, and last, but not least, an entire absence or the very minimum of leaf spot, for this disease is more or less prevalent and cuts short the crop almost every year. Going through the patch we look for these desired characteristics, stake and select the best specimens from them.

About March 10th we sow the seed in a neighbor's greenhouse. You who have greenhouses of your own can begin earlier, but I have got to transplant outside in hotbeds about April 1st and run the risk of bad weather conditions. April 20 is the date of our second transplanting. Here is where my methods differ from those of my neighbors. In the bottom of the frames we spread two inches of rotted manure, especially prepared for the purpose, packed and levelled, followed by two inches of earth the same way; into this we space our plants 4½ inches, grading them so as to give more advantage to the smaller plants, that they may be uniform for setting in the field.

About May 1st these plants should be nicely growing and ten days later or ten days before we expect to put them in the field, we subject them, in order to serve the purpose of our method, to what you might consider drastic treatment. First watering well, we take a bright, sharp spade and cut through both ways, leaving each plant in a block practically 4½ inches each way. They are a hard looking lot when we get through and it is not an easy job. It serves two purposes at least—it answers as a second transplanting and the roots are all confined to the individual blocks of earth and manure. After May 15th our whole concern is the weather, and it is a fortunate combination of circumstances that awaits you if plants, weather and soil are in the best condition in any one day. I do not know what your ideal of a plant is the day they should go to the field, but with a thick, broad top and about 12 inches high, just showing over the beds an occasional blossom is my choice. Without a greenhouse, the plant cannot be far enough advanced to be past that period, and the shock of transplanting will preclude any experienced man from setting out when they are in full flower. By setting instead in full bud, little danger will be experienced should cold winds and rains follow field planting. Of course, I realize that you who have greenhouses very often put them out with the first set of tomatoes on them. The 20th to the 25th is the average date of planting in the field. After marking out 4 feet by 4½ feet the 4½ the way we are going to pick, we run as many furrows with the team or one horse plough as we expect to set that day. Then after watering well we transfer the tomatoes to a flat waggon with forks taking four or six plants at a time. These are just as nice as any potted or dirt banded plants, and are more expeditiously handled. It takes three to make the best of field setting, and I generally attend to the setting myself just drawing enough dirt around their roots to nicely cover them and firming the soil with my hands. If your soil is fairly moist, do not be in a hurry to fill the furrow down, because the soil is absorbing heat, but be careful your plant does not dry out. You can observe this by their appearance on a hot day.

Last setting time was dry and warm. I had previous experience in setting plants in a dry time. I knew what to do, but it was a hard fight to go over 3,700 tomatoes and 2,000 melons, first with a tablespoon of nitrate of soda and then with a hoe drawing some soil around each plant and vigorously tramping around each one. That established a contact with the lower soil moisture, and they grew right on. Of course, if it is a wet season, the very opposite should be your practice. In 1916, if we had just set the plants on the high ridge of the furrow we might have had some tomatoes, for it rained continuously after planting and they were finally drowned and scalded. That did not happen to be underdrained land, but it is well to know what to expect so as to be prepared for any condition.

When in the field the danger of frost has gone, cultivate at least once a week, going between the rows twice and deep when you can no longer get through at one operation is our cultural practice. We all like to see the vines grow, and the ground covered as soon as possible. Tomatoes like heat, as do most other vegetables above ground, but any agency which keeps the soil temperature relatively cool and moist is a factor for a bigger crop. Nature's every effort is to cover up bare ground, and if your tomato, potato or any other crop fails at a certain date to shade the soil and protect those tender rootlets from the exreme heat and drought, especially of a hot, sandy soil, your chance for a maximum crop is gone. This is my opinion; it is a theory, but I have faith to follow it.

As to fertilizers, I grew on one spot fifteen years onions, melons, spinach and such crops and used all the manure those crops needed. Last year I grew Earliana tomatoes, and they were a record crop, both for yield and earliness, and were the best. The previous year a manure mulch was used in the celery. That is my experience with Earliana. Do not be afraid of having your ground too rich. The faster the vines grow in June the better is the crop likely to be, and too much growth at the expense of earliness can be largely controlled by ceasing cultivation.

Next thing is harvesting: About July 10th we expect the first ripe specimens. In a week or ten days later we shall be picking for the market and in the beginning it is a job for the boss himself. We do not want boys or careless help tramping vines and roughly handling the clusters; besides the trained eye knows where to expect ripe ones in the foliage. A little later, when everything goes red before a few hot days, it's anybody's job. But do not forget about the scald. Never turn green tomatoes abruptly to the sun.

About August 1st the weeds will be getting possession. They are your best friends. They in a way supplant your diminishing foliage. Do not do as I did one year when I was going away for a couple of days, and thinking the help would run out of a job I put them at pulling those weeds. They did an excellent job. The next day was a scorcher, and that finished the crop.

We aim to pick in the afternoon. It is a mistake to make a practice of picking in the morning when the vines are wet. We don't wait until they are ripe, which would mean too many cracked ones. A good many crops I grow take a lot of selling, but the Toronto commercial market seems about the best place to sell early tomatoes until they get cheap. Then it is a good place to stay out of. I do not know who supplied the market during September at 25c. to 35c. per 11-quart basket, but according to market reports they were sold at that price, and somebody was losing money all the time on them. When the market goes to pieces we do not expect much more from our tomatoes. The western market generally takes them then in 6-quart baskets, and the canning factory, perhaps, will receive some, but I am ready to make a sacrifice on perhaps a few hundred bushels, as I am thinking of next year's crop on my tomato land.

I want a cover crop. I always sow rye, but if I can seed before September 15th I add vetches. This last year I sowed two bushels of rye and one of vetches per acre, on September 3rd. I had difficulty sowing among the weeds, they were so high in places. Then we double disc both ways, and put the roller on; in three weeks' time you would not know what the previous crop had been. Whatever you do, do not try to plough it. There would not be any fun in it and it would not answer your purpose. Rye, like wheat, wants a firm seed bed.

Some of you, perhaps, do not believe in cover crops or have not enough ground and think you cannot advantageously use them. I used to buy all the manure I could get. It means a lot of hard work, as the manure is often too poor in quality; it costs too much, and the freight rates have made it prohibitive.

I always believed in cover crops and I never miss the opportunity to avail myself of their use wherever I can use them. They are the most natural and economical source of soil fertility at our command to-day. You will have problems and disappointments in learning to handle them, but the most of us can profitably use them more than we do. Our branch is ordering sweet clover. I have had some experience with it and can recommend it as the cheapest cover crop for this purpose.

W. J. COOKE: Do Earliana tomatoes stand hardening? Our experience with them is that they will not stand so much hardening in the beds.

H. SECORD: Plant the seed about the 10th of March, not a day earlier. My method of planting them in the beds is taken from the New Jersey men.

W. J. COOKE: When is the green cover crop ploughed under?

H. SECORD: You will have problems and disappointments in learning how to handle the cover crop. The safe rule with rye is to plough down as soon as you can get on the ground in the spring. A little manure and a little bit of lime will help you wonderfully. I do not want to leave the impression here that I would use this with early fruits or early lettuce, as you want them to grow right away.

H. G. FULLER: One grower said he ploughed down rye about the 1st of May and he could see the difference where the corn grew up which followed after the rye. For an early potato crop, he used rape, and ploughed down a crop that would hardy turn under, and I believe good results will come from that also. I am very much of the same opinion as Mr. Secord, that we must use more green crops to plough under in future for our fertilizer.

W. J. COOKE: Would it be any use sowing rye in the spring and then ploughing down about the middle of June for a late crop?

H. SECORD: I could not recommend it for that purpose.

J. LOCKIE WILSON here asked if Mr. Secord had any experience in staking tomatoes, to which Mr. Secord responded that he never staked them, but referred him to Mr. Fee.

I. J. FEE: I cannot say at the present time if there is any money in it or not. I was getting 50 cents a small basket for my tomatoes last year, and had just started shipping to Toronto when the hail storm came and destroyed them.

J. J. DAVIS: I agree fully with the staking of tomatoes if a man has the time to put on them, and I agree, too, that Carter's Sunrise, for special markets, are as good as you can get, but for ordinary markets you can get more money out of other kinds than you can get out of them.

W. J. COOKE: What about John Baer or Bonny Best?

MR. DAVIS answered in a favorable way as to these varieties.

W. J. COOKE: What about the Early Bell?

J. J. DAVIS: That is just a selection of the Earliana. You should see the crops of fruit and vegetables that Mr. Secord grows. He is one of the most up-to-date men I encountered in my travels. He thinks a thing out for himself, and backs his own opinions, and I think he has reached the right conclusion. I never saw such a wonderful set of Earlianas as I saw in the St. Catharines district last year. It was just like a nest of eggs with tomatoes laid in it. I don't see how it would be possible to get anything better. Of course Earlianas are not always so good. I was always prejudiced against them, but this year had to award most of the prizes to them on merit.

J. Lockie Wilson: There is no doubt that Carter's Early Sunrise demands the highest price on the market in Toronto.

R. J. Bushell: What land do you work, Mr. Secord?

H. Secord: A clay loam.

REPORT OF TARIFF COMMITTEE.

G. B. Hellerman.

There is very little to say in reference to this tariff matter. As far as your committee was concerned, they appeared before the Tariff Commission and presented data that seemed to be very acceptable along those lines. Mr. Reeves presented his matter and Mr. Delworth followed. Sir Henry Drayton asked if Mr. Delworth had those figures in shape so that he could present them. Mr. Delworth did not have them all, so Sir Henry Drayton requested that he would present them the following Monday. We had a very pleasant meeting before the Tariff Commission. The figures that I had obtained from the Custom House at Ottawa were presented, and I had some more at home which I forwarded to the Tariff Commission in connection with a number of other papers. I received a letter under date of December 5th thanking me for the letter that was addressed to the members of the Tariff Commission, supplementing representations made on behalf of the Ontario Vegetable Growers' Association. So that we did our work to the best of our ability.

The Chairman here read a resolution which had been submitted, as follows:

Moved by F. F. Reeves, seconded by Henry Broughton:

"That the delegates of The Ontario Vegetable Growers, in convention assembled from all parts of Ontario, view with alarm the action of the United States Congress in proposing to enact a prohibitive tariff against Canadian industries.

"We, her nearest neighbors, are her best customers. If they decide to erect a trade barrier so high that interchange of our products is made prohibitive, we would respectfully request our Federal Government to take such steps as may be necessary to counterbalance United States restrictive measures.

"A copy of this resolution to be forwarded to Rt. Hon. Sir Arthur Meighen and Sir Henry Drayton." Unanimously carried.

Moved by Henry Broughton and seconded by Maurice May:

"That owing to the heavy express rates, combined with the high cost of baskets and other containers, the tendency is to discourage and ruin the business of the grower.

"We, The Ontario Vegetable Growers, in convention assembled, are unalterably opposed to any increase in express rates on vegetables and fruit. Prices for our products have recently been reduced from 25 per cent. to 50 per cent. If express rates are increased, as proposed, it will prove a vital blow to our industry and will tend to lessen production. In recent years care has not been exercised in the handling of our products by the carrying companies, and great loss is sustained through pilfering, damage to packages, etc., and much difficulty is experienced in securing redress for such damage.

"Therefore we feel that the time is inopportune for any increase in rates as before stated.

"A copy of this resolution to be forwarded to Rt. Hon. Sir Arthur Meighen and Sir Henry Drayton." Unanimously carried.

CAULIFLOWER GROWING.

T. M. Mulligan, Harbord.

When our secretary asked me to deliver an address on cauliflower growing I felt it would have to be brief, as I had given a short address at the previous convention, but owing to time we were unable to have any discussion on the subject, which after all brings out the more valuable information.

I am only dealing with the late crop which can be grown on almost any soil with the help of irrigation. But a deep, heavy clay loam, well drained, is the ideal soil.

I give the land a heavy application of slaked lime every third year, which keeps the heavy soil sweet and improves the physical character of the soil generally, and also makes plant food available. A spring application gives better results on land heavily manured, some fifty tons to the acre. Fall-ploughed land retains the moisture the next season and is a great help to successful cauliflower growing, as it retains the moisture much better than land spring-ploughed.

Outdoor Entrance to Farm Storage Cellar.

The successful growing of cauliflower depends upon four fundamental principles. These are: 1. good soil: 2. suitable soil: 3. irrigation or some means of watering the crop immediately after planting or during a drought: and 4. good cultivation. These principles are mutually dependent upon one another, and success cannot be had with the crop without a combination of them all. Of these principles the last is the most important. It is also the one wholly under the control of the gardener and the one most disregarded, and the one that is responsible for more failures with cauliflower than all others combined.

Without doubt, moisture is the next main factor in success with cauliflower. I saw a great many fine crops of cauliflower ruined during the months of July and August, 1919, when with any means of watering or with irrigation the crop would have been a great success.

The cauliflower belongs to the cabbage family, but greater care must be exercised from the time seed is sown until marketed.

There are various ways in which a cauliflower plant may receive a check, and after that takes place the plant is worthless, but still the gardener may not be aware of the fact as the plant continues to grow vigorously until later in the season it either buttons or produces a cauliflower of no market value.

A check at this stage will ruin your entire crop when by exercising a little care it can be avoided.

By sowing your seed in very rich soil the plant grows too rapidly, there is too much leaf and too little root. This plant transplanted is reasonably sure to receive a check. Cauliflower seed should be sown in a cold frame, thinly in a comparatively poor light soil, kept well watered, and you will have a strong plant with plenty of root. Then you must protect your plants from the root maggot. The eggs are deposited by the fly at the root of the plant. The maggot feeds on the delicate rootlets and their destructive work is scarcely visible to the average gardener, and the plant becomes worthless by an early check. Some growers cover their frames with cheese cloth to keep off this fly.

I get good results by sprinkling Vaporite in the frame after the seed is sown, which keeps the flies away owing to the odor, much like tar, which does not in any way injure the plants. Good seed is equally important. The best seed is expensive, but you must rely on reliable seedsmen.

A DELEGATE: We do not find any ill effects from sowing Vaporite on top. If you put it and sow it on land and plow it in, it will kill the seed.

T. M. MULLIGAN: I don't think it can be the same preparation.

THE DELEGATE: If you read the directions, they say: sow it fourteen days before you sow a crop.

J. LOCKIE WILSON asked Mr. Mulligan how he kept his cauliflower so pure white in color.

T. M. MULLIGAN: A great deal depends on a good plant. Keep it growing right along, without any check, and give it lots of moisture. As soon as the head is about the size of a hen's egg, we immediately draw the leaves over and tie them. When a man becomes accustomed to that work he can close up 800 a day. The plant grows very rapidly and matures probably in a week's time. Tie the leaves over them with a string just as if you were making a tent over it.

H. SECORD: Have you any rule to go by to govern you when you cut the head?

T. M. MULLIGAN: We use different colored strings to know which heads are to be tied each day.

A DELEGATE: A good deal depends upon the weather, too!

T. M. MULLIGAN: Yes; in very warm weather they grow very rapidly.

A DELEGATE: What about spacing?

T. M. MULLIGAN: The rows are three feet apart and the plants three and a half feet.

A DELEGATE: What variety do you use?

T. M. MULLIGAN: Snowball or Erfurt.

A DELEGATE: Would the Erfurt be good for early cauliflower?

T. M. MULLIGAN: The Snowball is about ten days earlier than the Erfurt. You cannot grow early cauliflower on heavy soil like mine. It takes too long to warm up.

A DELEGATE: You don't transplant?

T. M. Mulligan: No; that is another point on which a great many growers differ. Some claim they get better results from transplanting the plants into another frame as soon as they are large enough. If they understand it thoroughly and transplant them at the right time, they may get along all right, but transplanting is uncertain. I proved that last year. I put 1,000 plants in a frame and transplanted them; put them in a patch separately, and about two-thirds of them were irregular in growth and buttoned. I take particular care in having the soil rather poor. If the soil is too rich you get too quick a growth. My soil is a heavy clay loam.

A Delegate: Is your seed bed a heavy clay loam?

T. M. Mulligan: No.

The Same Delegate: Do you use irrigation on them?

T. M. Mulligan: Yes, the Skinner system.

J. Lockie Wilson: What would be the difference in your plants if you did not tie the leaves over the top?

T. M. Mulligan: They blacken up at the side. Sometimes a small plant late in the fall, when the weather is dark, would not be so bad, but still it would be a dull color. A plant coming on in the early part of September must be covered.

A Delegate: Do you use a heavy application of barnyard manure?

T. M. Mulligan: I have been sticking to acid phosphate. You don't want too much nitrogen in cauliflower.

A Delegate: When the plant is growing well in hot weather, is there danger of a check that spoils the head when the plant is half grown and you get a hot spell?

T. M. Mulligan: Yes. I judge that the average gardener gets about one good crop of cauliflower out of thirty-one. There are a good many gardeners who grow cauliflower who should not touch them at all.

The Same Delegate: If the plant has started to grow and is healthy, will that check spoil it?

T. M. Mulligan: Yes.

One delegate here asked if check ever caused head to discolor, to which the speaker responded: If you cover it up it will not discolor, no matter what size head it is.

W. Cooke: When you have apparently a healthy plant, almost at maturity, the head won't start white, it will be a poor head at the start.

T. M. Mulligan: You will find that is from some light check at the early stages. It seems hard to understand that, but it is a fact. Some growers don't take care enough to transplant to the field. You ought to put it down a little deeper than you would cabbage—down as far as you can put it.

W. Cooke: The injury I was talking about comes after the plant has had a healthy growth, and I suppose it gets a check about the middle of the season. It extends into a head that has no form and no color.

T. M. Mulligan: It may receive that check because of lack of water, but still continues to grow. It is very hard to say when that plant got a check.

A Delegate: How do you set in the field?

T. M. Mulligan: With the trowel.

Another Delegate: What causes the whole head to rot from the stem up?

T. M. Mulligan: That happened last season, due to too much water in hot weather. We lost thousands in the field at that time—perfect heads, but they all rotted at the root and dropped out.

A DELEGATE: There are some larger varieties—what objections are there to those?

T. M. MULLIGAN: I don't know. I have tried one of the old country varieties, but did not seem to get results. The Otto King is a very late variety and requires a longer season.

A Delegate said he had had good success with the Otto King in England, had never grown anything else there, but he had never had any success with them here.

EXPERIMENTAL AND BREEDING WORK WITH VEGETABLES AND SMALL FRUITS.

E. F. PALMER, VINELAND.

My remarks will be rather in the nature of a few suggestions as to experimental and breeding problems with small fruits particularly, and the work being done at Vineland to solve these problems. One of the chief problems that the growers of small fruits in the Niagara Peninsula are up against with raspberries is that of over-fertilizing. Many people have said that you cannot over-fertilize small fruits. but the raspberry growers have found that you can—or have an unbalanced fertilization. The result they are getting is that they are manuring rather heavier than they were several years ago, and they are getting a greater growth of cane but not as heavy crops as they used to. The heavy fertilizing with manure alone is giving them a very rank growth of cane, sometimes seven or eight feet, and they will start cutting those canes off at the hip height or thereabout, or the canes will not support themselves with their load of fruit. Now that means that either one of two things must be done—either a more balanced soil fertilization or else cutting the canes higher up. They can give them a more balanced soil food by adding phosphoric acid in some form or another. The other proposition is to cut their canes higher, and if they do that they must support their canes in some way as they are supported in British Columbia, Oregon and Washington. They make a regular practice there of supporting the canes and cutting them high. You know that as a raspberry cane grows down near the ground the buds are very far apart, and as the cane reaches the top the buds are very close together. Now when they cut at hip height there were plenty of buds left, but with the forcing of the plant they forced the height of the plant so much they don't get the buds close together until they cut to a greater height. The result is that cutting at greater height they will cut off part of their fruit as well.

W. COOKE: Why do they not cut earlier in the season, when the cane is the right height?

E. F. PALMER: It is not a safe practice, chiefly on account of winter killing. If you cut earlier you force the buds into growth that season, and you get a lateral growth, and if this lateral growth does not mature you have trouble. In tipping back they force the laterals in the fall instead of cutting next spring. If they mature before winter, if your winter is not too cold you will come out all right. If they mature and your winter is too cold, you lose out.

W. COOKE: When do they tip?

E. F. PALMER: Some of them tip before you start picking your raspberries. Your new cane at that time is sometimes up to the old and sometimes over. If you are going to tip you must do it then, or you can do it when your crop is over. Personally I advise letting the tipping go until the following year. You get your laterals next year. That is the first thing which grows in the spring. You simply delay the growth of the lateral by delaying the pruning back until the dormant season. It is a case of safety first. We have planned an experiment at Vineland to attempt to verify these observations we have made. That raspberry plantation was just set out a year ago last fall, so it has not yet got to the stage. This same problem of over-fertilizing also applies to strawberries, though in somewhat of a different manner. We find that certain varieties of strawberries can stand almost any amount of fertilization, whereas others, and particularly some varieties which we have secured from California, if you give them a rich soil make a very rank growth of plant and very little fruit, and the fruit is soft. The question of the richness of soil for strawberries is one for the individual to work out with the varieties that he has. Generally our commercial varieties grown in this country will stand as heavy or heavier fertilizing than ordinarily given.

J. Lockie Wilson: What do you consider the best variety of strawberries for your section?

E. F. Palmer: I cannot answer that question. The only thing I can say is for a man to grow the strawberries that succeed with his immediate neighbor. The strawberry is probably more subject to local conditions of soil and exposure than any other plant we have. Our experimenting at Vineland might not be of any use to a man across the road from us, because of difference in soil. In a general way I might say that there are four or five varieties which will do well. Senator Dunlap, Parsons, Brandywine, Michel's Early or Kellogg's Premier for early, and Dr. Burrill. This is only a general recommendation.

J. Lockie Wilson: Which do you find best in the Vineland district? Around Clarkson the Glen Mary seems to be the favorite.

E. F. Palmer: The Glen Mary is coming into more general favor in the Vineland district. This last year was a Glen Mary year, and the crop was extra good. Under ordinary conditions the canning factories do not want the Glen Mary, but they favor the Williams.

J. Lockie Wilson: Which do you consider best for Toronto market, the Glen Mary or the Williams?

E. F. Palmer: I should say the Glen Mary. It is a better size.

W. J. Cooke: We have very rich soil and are growing Senator Dunlap. Do you think we are wrong?

E. F. Palmer: Not if you are succeeding with it. The Glen Mary will stand up under greater variety of soil than any other variety. I would say the Senator Dunlap is good for rich soil, as it is a light foliage maker.

A Delegate: What about Parsons?

E. F. Palmer: I consider it a good berry myself. Under our tests it has done very well. The seeds of the Parsons are very prominent on it, and with that class of berry you will always find it is a better shipper, whereas if you take the variety which has the seeds sunken and the flesh quite prominent it is a poor shipper. That is almost invariably the case.

W. J. Cooke: How about the William Belt?

E. F. Palmer: It is a pretty good berry. The fault we find with it is that you get a quantity of large berries at the start, but they very quickly drop back into small ones in a dry season. In the Niagara district, at least, it will not give you the continuity of crop that the Williams will. If irrigation is used it would have to be very carefully done, otherwise you would have a soft berry difficult to ship.

J. Lockie Wilson: Is the Skinner system satisfactory for strawberries?

E. F. Palmer: You can increase the yield unquestionably, especially in a dry season, but you cannot increase the quality very much, the shipping quality particularly is decreased. We found in our work that we increased the yield in both strawberries and raspberries, but we got soft berries, even with a moderate amount of water applied.

T. M. Mulligan: We made $2,500 out of an acre under the Skinner irrigation system.

E. F. Palmer: A man at Jordan harvested 14,000 quarts to the acre, his average price per quart being 20c. Of course, that is an abnormal yield. He had both Glen Mary and Williams. In 1919 he had a yield of about 12,500 quarts from a second year patch of Williams. He grew Williams this year, but not altogether. Six thousand or 8,000 quarts is a reasonable yield.

A Delegate: What do you find the best time to mulch your strawberries?

E. F. Palmer: Soon after the ground freezes up and not before, if there has been any time for alternate freezing and thawing. The time you rake it over in the spring will depend upon weather conditions. It will also depend somewhat on the kind of manure you use, whether it is strawy or decomposed. I prefer well rotted on account of weeds which get into the straw.

A Delegate: Would not the decomposed manure tend to smother your berries rather than the straw?

E. F. Palmer: It depends somewhat on when you take your mulch off.

A Delegate: Is there not some difference in localities? A light straw mulch would save from frost.

E. F. Palmer: Whether you use straw or strawy manure depends a good deal on whether you carry your patch for another year or not. If you do not intend to use it another year it is all right to use straw, but if you intend to carry your patch for another year, I would prefer the short stuff, as you can rake it in between your plants. If you intend to carry for another year, the long straw is in the way.

J. J. Davis: How about putting a match to it and getting rid of it that way?

E. F. Palmer: I do not believe in that way of clearing it off.

J. J. Davis responded that was the best way he had ever found to do it.

E. F. Palmer: The general experience of our growers is against that practice.

W. J. Cooke: When do they do it, in the spring or the fall?

J. J. Davis: After we get through picking, we cut off all the leaves, then put a match to the end of the patch and let the fire run through.

E. F. Palmer: In British Columbia, where I came from, we used to practise that method always. Of course you had your rows closer together and the original plant was the only one to grow. You had a very strong heavy plant. We would keep a patch for two or three years. But I am giving you now the experience of Niagara growers.

A Delegate: What is the objection of growers?

E. F. Palmer: One of the prominent growers says that it weakens the plant cutting the foliage at that time; that the foliage is necessary to give the plant vigor the following year. We have for some years past been working with strawberry varieties with several objects in view, and we have at the present time several very promising new seedlings. If any growers want to try out new seedlings we would be only too glad to have them write and tell us what they want. We sent out in the spring of 1920 plants of about twenty of our best hybrids to twenty growers in the Province. Those hybrids will fruit this season, when we will be in a better position to tell you of their merits or demerits. At the present time the work we are doing is to incorporate the good quality of the English variety into the productiveness and good qualities of our ordinary native varieties. That work has not proceeded very far as yet. In raspberries we distributed a few of our best hybrids last spring, and we have more to send out this year. We are working for an early variety particularly. We want some earlier than Marlboro with higher quality. We feel quite hopeful that we have got varieties both earlier and better in quality. Of course, they have to be tested out by individual growers to let us know their merits.

We have also been working with greenhouse cucumbers. All of you who are growing cucumbers for a greenhouse crop know that you have difficulty in securing a set of fruit in the greenhouse. You can get a set with the Old Country long green type because that type of cucumber sets its fruit without fertilization. The fruits develop and are seedless. The work which we carry on at Vineland was originated at Guelph, and we secured from there the third generation of seed. We have carried on for six generations so that now it has been tested to the ninth generation. We have nearly got what we have been working for and that is a seedless cucumber of about 8 in. to 10 in. in length and about 1¾ in. in diameter and one which will set in quantity.

Here are some illustrations of the methods of working to try and show the results. Picture of Sutton's Everyday-Speaker; one of the parent seed. This was crossed with Fisk's White Spine and the hybrid secured was again crossed with the Princess, a German pickling cucumber. Those three varieties are represented in the hybrid illustrated here. We have the color and smoothness from the English variety. It gets the square nose and butt from the German pickling cucumber. This German cucumber is not as blocky as it should be. The color is, we think, good, about the same color as the English cucumber; grown outside it is a very dark green cucumber. It seems to be a very nice variety for outside, too. Its recommendations are its size, its smoothness and the fact that it will set its fruit without fertilization. It is not necessary to pollinate; it is a variety which will set fruit going up on the upright as well as crossways.

The average per year of this hybrid on the last crop we grew on our better selections was practically thirty cucumbers per plant. These plants were about a man's height and ran about four feet either way. They were spaced in the greenhouse approximately three feet each way. We were pretty well crowded and we did not get as much light in the centre of the house as we would have liked in order that fruit might set freely.

THE VEGETABLE GROWER AND HIS PROBLEMS.

J. W. Crow, Professor of Horticulture, O.A. College, Guelph.

If I were a market grower I should wish to find a way around many problems which at present handicap growers, and which seem to me to constitute serious difficulties standing in the way of vegetable crop production.

I wish to-day to state or define these problems, believing that they must be formulated before they can be expected to receive attention from the scientists who must eventually solve them. The vegetable grower in the past has not stated his problems except in a general way, and one of the chief reasons why the industry he represents has not received more attention from agricultural colleges and experiment stations is because his problems have been given no clear definition in the terms of the scientific worker.

The general public, and even the majority of farmers, seriously underestimate the skill required in the profitable growing of vegetable crops and the extreme intensity of the methods employed. This misapprehension is unfortunate from two standpoints. It does the vegetable grower a serious injustice by ranking him far lower in the category of workers than he rightfully deserves. It also denies to fruit growers and farmers an object lesson in skilful plant handling which they might study to advantage, and which would be productive of much benefit in their work. The vegetable grower and his twin brother, the florist, can teach us all how to grow plants, and it is not too much to say that in so far as skill is concerned, the growing of farm crops by methods in use on our best farms is veritable child's play compared to the growing of crops under glass and in gardens.

Garden Peas.

By stating the matter in this way, I mean only that the problems of plant growing are far more acute for the vegetable gardener than for the farmer. This fact is worthy of much wider recognition than it has received. If a farmer is interested in the maintenance of soil fertility for crops which require so little labor per acre as wheat or hay, how shall we measure the interest in the same problem of the gardener, who puts ten times or even a hundred times as much labor on a given area of land?

It is probable that the most important cultural problems of the vegetable grower centre in securing and maintaining the highest possible state of soil fertility. The principal soil problems of the wheat grower are to decide the place of wheat in the rotation, whether the seed bed should be worked once or twice, and perhaps whether the crop would pay its share of the cost of tile drainage. The vegetable grower wishes to know whether 25 tons of stable manure annually is enough, or whether he should use 50 tons. He wishes to know how much of this quantity is physically useful as humus, and how much is needed for plant food; how much plant food is lost by leaching; which elements are lost and which retained; how much chemical nitrate can be used safely and under what conditions;

what amounts of other fertilizers are needed for different crops; when they should be applied; which crops may follow certain others and which may not; to what extent tile drainage may improve summer moisture conditions; under what conditions and to what extent green manure can replace stable manure; to what extent tillage conserves moisture, and to what extent the beneficial results of tillage are due to aeration.

In my judgment these are all questions of immediate importance, and there is scarcely a market grower who is not directly interested in all of them. It is highly probable, too, that new information on any of these problems would find important applications to the growing of general farm crops and fruit.

Besides these there are many other problems upon which the vegetable grower would like information. For example: Is the value of the resultant crop in any way affected by the locality or climate in which the seed was grown? If so, where are the best sources of seed of given crops? To what extent is it possible to improve vegetable varieties through breeding and selection? Is it possible to produce desirable varieties which would be free from the numerous diseases attacking vegetable crops?

The solution of these questions is for colleges and experiment stations to undertake, but it is for the vegetable grower to interest himself and urge the seriousness of the situation. There is at the present time in Ontario no systematic, organized attack on these problems, and until the growers state definitely what they need there will be none.

The vegetable grower might very well interest himself also in the organization needed to keep him informed with regard to new knowledge on these and other problems. The men engaged in the work of securing new information and of carrying it to the grower are anxious to do their part, and it is earnestly to be hoped that adequate facilities may be provided at an early date.

This outline of work to be done is brief, and might be expanded very considerably. There are still many insect enemies and plant diseases to be studied and controlled. Something might also be done, perhaps, in the way of warning the growers of pests which may be expected to occur. In the recent survey of the vegetable-growing industry 13 types of soil are listed as being used for vegetable crops. A sufficient number of physical analyses of each type might be made in order to permit more accurate classification, and to make possible much more definite instructions regarding treatment in given cases. I should welcome a frank discussion by this Association of the services you expect from us who form the present staff of research and extension workers in vegetable gardening, to the end that we may reach an understanding which will result in material benefit to your important industry.

I wish at this time formally to invite the Vegetable Growers' Association to visit the Agricultural College at some convenient date in July or August. We are anxious to know what work you would like us to do, and we hope you will find work in progress there which will meet with your approval.

J. Lockie Wilson: We appreciate very much the addresses of Mr. Palmer and Mr. Crow. They are working in the interests of the Vegetable Growers' Association, testing out these different varieties, and, as Prof. Crow has stated, they are very anxious that they should know how these different varieties of seed and small fruits test out in different localities. The colleges are going to much labor and expense in connection with these experiments, and growers should report on seeds which were furnished them to test.

Prof. Crow: I do not wish to accentuate this point, but am very desirous to know how growers came out on their seeds. I should like to have questions of soil and fertilizers discussed so that we may know at the college whether the growers wished this work carried on in order to help them in their difficulties.

J. J. Davis: We are altogether too careless and indifferent about what these men are doing for us. I had some celery seed sent to me from the College at Guelph the last two or three years. I grew it and it proved very good, so good, in fact, that I seeded some of it myself, and I thought it was a pretty good strain, and intended to breed it up and improve on it, but, unfortunately, I did not. We have a new disease in our neighborhood these last two years which has been particularly bad—red rust. It is getting almost as bad as the blight. One strain that we got from the College from Mr. Crow proved itself to be resistant to that particular disease. We grew it. We had practically half an acre of celery, and it was all grown from seed that I produced from a strain that I had received the previous year from the College at Guelph. Then this other variety came along in the spring, and I had enough of it to make one row of that and put it alongside the other. The one row kept immune from this disease throughout the whole season. I saved plants for seed, kept them over the winter, and I turned the piece over to the boys in the fall. They planted the plants all right, and put them in the greenhouse, but, unfortunately, let them burn up one day, and I was careless enough not to keep track of the number. They lost the strain and I lost the number. I can't go to Prof. Crow and say I want a little more of that seed, because I don't know what the strain was.

Mr. Davis concluded by censuring his own and other growers' carelessness, and said if they were made to pay $10 for half an ounce of this seed they would take better care of it.

J. W. Crow: We have a number of strains of the Paris Golden variety that are straight Paris Golden in every way but in color. They are rather darker green. But we have a number of strains that seem to be quite resistant to disease. We will be glad to have those tried out, because we think they have a value. Some of the growers tell us that some of our medium-green strains bleach very easily, and are disease-resistant to a very large extent. We will be glad to have anyone try these seeds out.

F. F. Reeves also confessed here that he had not reported on the celery they had the year previous from seed supplied, and remarked: We had some good celery. I think that I still have the number of the good variety. There was one green celery that we got from the College that was particularly good. In our locality we had last year a disease in the celery that affected all other seeds but that one. It was a very large blotch on the leaf, but not at all like the ordinary blight; it was a blotch that would run a quarter-inch across it, and when you held the leaf up to the light it looked as though it had been burned right through. That was prevalent on all our other celery except what we got from the College. The Paris Golden that we had in two lots was particularly good. One lot did not suit our locality as well, because it was a little straggly.

THE STORAGE OF VEGETABLES.

A. H. MacLennan, Toronto.

The storing of various vegetables depends largely on two or three important factors. First, atmosphere; for some it is necessary that it should be slightly moist; for others, dry. Second, temperature; in most cases this is from 32 to 36 degrees; in many cases the best results being obtained at 34 degrees. Vegetables should not be too far advanced in growth as an over-ripe vegetable will not keep in storage. Anything just matured will keep much better. No frozen vegetables, or just touched, should be put in storage.

Some rules that might be given are as follows:

Root Crops: Cool, moist conditions, with fair air circulation; temperature near freezing; small lots may be covered with sand.

Cabbage: Heads just matured; ball headed keeps better than flat; cool, moist conditions near freezing.

Celery: Roots packed in sand; temperature 34 degrees, no moisture on the leaves and a fair amount of ventilation. Where celery is kept in a cool storage it may be packed in crates and kept at a temperature of 34 degrees. Celery to do best in storage should be partly blanched before putting in.

Pumpkins, Squash and others of the same family should be put in carefully and not bruised, leaving stem and a little vine on them and ripening them in the field for two or three days after pulling. They should be stored in a dry, warm room at 50 to 60 degrees.

Onions: Well cured in the field, then put in a cool, dry room with good ventilation and kept at 34 to 38 degrees.

Potatoes: Should be dried in the open air for a few hours and then put in an open shed for two or three days; finally placed in a cellar where the bottom and sides are built of slats two inches apart; cool, moist, with a little air and kept at 33 degrees.

Tomatoes: The whole vine should be taken up and hung upside down in a warm room.

Vegetables should always be free from blemish. A stem one-half inch long should be left on root crops to prevent them bleeding; this will dry off in a few days.

C. W. Dempsey: After hearing Mr. MacLennan's able address on the storing of vegetables which has been rather a difficult problem with most growers this season, owing to the mild and very changeable weather which has prevailed. I think he has touched on most of the important points, and there are many valuable ideas mentioned by him. Having had experience in storing vegetables on only a small scale, I am not as well versed on the subject as some of the larger growers, and will merely mention a few methods which I have found fairly successful in my case.

In storing onions we have been using orange boxes instead of onion crates, as we have found them much cheaper and easier handled. We put about five pecks in each box and build them up on top of one another in a dry cellar, starting by putting two rows of 2 x 4 scantlings down on the floor far enough apart to come under the ends of the boxes, which raises them up and leaves a good space for the air to circulate under the row. After the bottom row is filled we put two more rows of scantlings along on top of the ends of the boxes and build on another row and so on up as high as is handy to lift the boxes up, keeping each box a quarter of an inch apart in the rows. We have also found that well ripened onions keep much longer if not topped till just before selling them.

In storing celery for winter use, we have been using a building with cement walls about five feet high with a glass roof, so we could use it for growing plants in the spring after the celery is all gone. We rake the floor perfectly level, so it is possible to run water under the celery whenever necessary, and then drive down stakes in rows up the full length of the building, having the rows about four feet apart, the stakes being high enough to come about level with the top of the celery and a couple of inches thick. We nail boards along both sides of the stakes, keeping them a few inches above the floor so the air can get down through the celery at all times. We keep these boards level on top so we can walk along on top and examine the celery at any time after the building is packed full. We place the celery as straight and close as possible, taking care to have all the roots touching the floor so that each plant will get its share of water which we run under it when necessary by putting the hose down between the rows of boards and soaking the roots without getting any water on the tops. We also have found that by putting a thin layer of hardwood leaves over the top, which we increase in thickness as the weather gets colder, that the celery seems to blanch much better and has a better flavor than when the leaves were not on. We have always been successful in keeping the celery in good shape till the end of December in this way.

Storage House for Cabbage and Turnips. Note ventilation system in ceiling.

A DELEGATE here asked if the frost never got on it.

C. W. DEMPSEY: No, the hardwood leaves seem to allow circulation of the air, and the frost does not strike. If you think there is any danger of frost, cover with newspapers and then take them off again when the cold spell is over.

DELEGATE: Are you taking that celery out at the present time?

C. W. DEMPSEY: We do not try to keep it after the new year. We have not been very successful this year in storing cabbage, but have never had trouble before. We just put a platform about 4 or 5 inches from the floor. We build up five or six rows, one between the other.

A DELEGATE: Do you pack your cabbage head upwards?

C. W. DEMPSEY: We put them upside down. In other stuff we just make a bed somewhat similar to what Mr. MacLennan has shown you: then put a little straw down if it gets too cold.

A DELEGATE: What has been the trouble with the cabbage—too much warmth?

C. W. DEMPSEY: They rot. They were not frozen before they were put in, but I think it is the heating.

A DELEGATE asked if this was perhaps "black rot," to which speaker responded that he did not think so; they were healthy when he put them in.

F. F. REEVES: Do you not think it was weather conditions largely this year during the growing season, because so far as I have been able to see, it does not matter under what conditions you put them in, it is practically all the same.

One member thought it was the very hot weather early in the fall starting the cabbage "sweating" before the freezing weather came on.

F. F. REEVES: The trouble with a lot of the cabbages seems to be that the outside leaves look to be all right but the heart is gone if you cut them in halves.

J. J. DAVIS: There seems to be a wide range of methods of storing vegetables. It is up to each individual to select the one that is most adaptable to his own circumstances. The old method of pitting things out of doors, like the picture showed us, seemed to me quite a few years ago was wasteful of the goods and wasteful of time and labor, and labor means money in these days. If a man resorts to out of door pitting he is practically digging a cellar every fall. I dug a cellar with cement and put a flat cement roof right over it and it proved to be all right. I cover the top with soil and put a sort of frame over that so that I could set some tomato plants out in beds.

J. LOCKIE WILSON: What depth of cement on the roof?

J. J. DAVIS: About 2 inches, and of course, when it gets very severe weather we throw a little manure on to keep out the frost. I cut an opening from the greenhouse into the cellar, so that we could get anything we wanted without going out of doors. That is one of the objections I have to a pit out of doors. It is disagreeable and hard work, and the frost gets in after you have an opening in unless you go to the trouble of taking and filling up with fresh manure.

I have found in my experience that it is a good idea to get in and handle your stuff over during the winter, even with cabbage. I have an open pit, besides our cement, and put 2 x 4 scantlings up as rafters, the same as on an ordinary building, and put boards on that, and cover the boards with manure. You can go into it at any time you want to and get your stuff for the market. You are inside. If you find that your cabbage, or whatever you are keeping, are not keeping quite as well as might be you can go in and strip them all over, take the bad leaves and leave your cabbage, and you can prolong their life by one or two months, because if you once get cabbage or anything else in a pit in bulk and they begin to get too warm and begin to go they are practically done for unless you can get in amongst them and strip them. I found that by having permanent pits that you can get into it is a saving of crop and also of time and labor. I would not want to go back to old style methods again.

Some years ago we had a discussion here, and one man said an outside pit was as good as any other method, if the Lord sent the snow. But He does not always send the snow; then you have to dig down with a pick to get them out. I have taken particular note of the comparison between my own and my neighbor's methods, and I find that I come out ahead. If you construct a proper pit and make your own conditions you can regulate them; if you have them out of doors you can not do that so well.

Of course, there is a great deal of difference in seasons, and some years I find that I have to strip my celery and cabbage, other years they keep without any handling at all. If it is out of doors you cannot get at it.

A member asked how wide was the pit he mentioned.

J. J. Davis: About 15 feet wide; another one is about 10 feet wide only.

A Member: How many rows of boards under your roof?

J. J. Davis: I have three rows of cement benches, that is, a centre bench and one on each side. I put a cement post about 4 inches square right along the edge of the benches and up to support the roof. It is in as good shape as it was when I built it, which was a good many years ago, and I think it is about the right idea of building things to have them permanent. After we get the celery out we put in rhubarb. The other pit, the narrower one, we just cover with boards and manure. We use the boards that we use out in the field in the summer time for blanching celery. It is a very convenient way. When we put in the cabbage, all we do is just drive alongside the pit and throw the cabbage in. We don't wrap in tissue paper, of course; we don't need to do that for our market. But we take the precaution of putting in boards or crates that will come from the floor about a foot or two so as to circulate the air, and the heat can draw out, so that the warm air can get out and away.

T. M. Mulligan: I am not prepared to say very much. I resort to the old method, namely, the pit. Celery is the one line that we should give a little attention to. Two of our most successful growers at Ottawa have regular celery houses. They build a cement wall against the bank and put the celery in crates, much the same as onion crates with a rack that extends about 10 inches above the bed of the crate. The celery is packed in those crates and the crates set one on top of the other. The building is ventilated by a fan going through. Of course, that is only for extensive celery growers. They keep nothing but celery in that building; they get $1.50 a dozen for celery to-day.

A Member: Will that celery bleach without rotting a little?

T. M. Mulligan: Yes. The Williams' people grow half a million plants. He has two beds, one he keeps a little warmer. In the other he keeps the fan running. The fan is run with a small motor.

A Member: Is there no danger of its getting too cold?

Speaker: You have to watch that carefully and stop the fan when it gets too cold.

A Member: Do they use any artificial heat there?

T. M. Mulligan: No, it is warm enough without.

A Member: Does he take some of the outside stalks off those plants?

T. M. MULLIGAN: No, just trims off the bottom, but keeps it protected well. The pit is 100 to 125 feet long.

A MEMBER: How high does he pile it?

T. M. MULLIGAN: Four crates high. The crates are 18 inches wide, 30 inches long and 2 feet high. He places two rows close together, then leaves a passage between.

W. J. COOKE: The ground has been pretty well covered, but there is a point or two I would like to make. The first point is to try and look ahead into the economical situation, and see whether it is going to pay us under present day conditions to store vegetables. Now we did some looking ahead last spring and we thought that cabbage nine times out of ten was a good bet. We thought we could raise it as cheaply as anyone could under the conditions which we had. We had a block of, I might say, farm land. It was land worth probably $200 an acre. It was in fairly good condition. We could put the cabbage in to cultivate both ways, and we thought under those conditions we could raise cabbage to sell against the market. We subsequently put that block of 2¾ acres all into cabbage. You know the result. One thing we could not guess was weather conditions, and we got disastrous weather conditions last year. Now, ordinarily we could have sold half that cabbage before time for storage, but when the time came for storing the cabbage we were faced with 12,000 cabbages to put in the cellar. Now the approximate cost of that cabbage is 3¼ cents a head when it was in the cellar. But that does not include the work with that cabbage in the cellar, the trimming nor the marketing. We are selling that cabbage for 3 11-13 cents a head to-day. If we did not take into consideration our winter work, we are making 3-5 cent per head. Taking into consideration our winter work we are making nothing. Now it is not paying us to raise cabbage to store if this is a typical year of what we may expect in years to follow.

Where is the trouble? One of the great troubles is the expense of building which you must have. We have seen on the lantern slides many various ways of storing cabbage out of doors. It may be possible in some districts but in ours I would not be bothered with it. I would not raise one vegetable for winter storage if I had to resort to outside storage. Our conditions are so variable, and the trials and tribulations which we are up against trying to get those vegetables out of storage in severe weather makes the game not worth while. Consequently, unless we can lower our costs or expect higher rates, we are rather in a bad way, as far as making any money out of winter stuff is concerned.

I was pleased with Mr. Wilson's address on the economics of the day as pertaining to market gardeners. That is one point which we should steadily bear in mind, that we have to study the situation as we find it, and as we are going to find it before we lay out any work for the year ahead, and I would have liked to have heard a discussion to-day and get the viewpoint of all the growers as to what they think we are facing in the year to come, because we must admit that the latter end of the present year was disastrous as far as profits were concerned. The early grown stuff gave us a profit, but the product we produced at the latter end of the season, and which we stored in the cellar, I think, if you will figure out carefully, you will find we have produced at a loss.

It requires a lot of room for storing 12,000 cabbages. We saw a storage house here so built that cabbage was placed on a shelf. I would like to get into that house and estimate the cost of lumber and material in that building. I think you would find that the overhead on that building would be prohibitive.

I put up shelves so I could put the cabbage in three deep, and then it made me hurry to get enough lumber and material to get those shelves. If I had put them one deep, I would have been ruined. And, mind, one deep is the right way. Now, when we were drawing it from the field I told the men who were loading in the field to discard everything that is not perfect—the hardest thing to get a hired man to do. I picked the cabbage myself and I discarded at the other end; and if I had discarded one-third of the cabbage, leaving it two deep on the shelf instead of three deep, I think I would have been ahead. Now we store that cabbage face down, then at the first trimming we store it face up. Now, the idea of the face down the first time is to trim; the idea of facing it up the other way. is the Baldhead cabbage that we got is a little flatter than ordinary. The first cabbage is the hardest part to trim.

A MEMBER: Do you trim the roots off?

W. J. COOKE: Yes. It would have taken a $50,000 building to put it in with the roots on. I have been trimming cabbage all winter at about 1c. a day. I kept note as I went along to see whether I could gain any ideas as to where there had been a mistake made. And I gained several. One is that you have to have immaturity on cabbage before it keeps. If you get a mature cabbage it rots very quickly, and if you get a slight frost it freezes very easily. Another is, you must have a cabbage that is free from disease. Now there is on the cabbage this year, I suppose on account of weather conditions, a blight, a spot, I don't know what it is, and I found that these rotted much quicker than the others. Those are two points.

And the third is the type of seed. The seed you get is valuable in your storage for two reasons: one is the seed may give you disease and the other is the seed may give you a type of cabbage which is not the best for storage, and that is one trouble with the Baldhead which we are getting to-day. It is not the proper type of cabbage for storage.

The same thing also holds good in storing celery. I have got to take some exception to some of the previous remarks on celery. We can't satisfy ourselves that there is any money in storing green celery. We use Paris Golden as soon as we can grow celery in the field, probably some time in July, and from that time until the end of the season. The reason for that is this, it is a lottery unless you are more expert than we are holding celery after Christmas; therefore, when you store your celery in November you want to sell right away. There are two months of good selling and not much loss. If you put in Paris Golden you have no waste time bleaching. With our market we want celery which is ready to sell at any time. We put this in small sand trenches. If that is dry when we are storing we put enough water in to moisten the same. What we need about a week ahead is water if we find it is not bleaching. By watering just ahead we find there is no decay.

A MEMBER: Will celery decay by watering if you do not get the tops wet?

W. J. COOKE: If you have the Paris Golden you only want to water what you want to freshen up for the next week. Too much moisture is what starts the rot in your celery. The soil wants to be damp just enough to prevent rotting. I take off just the outside leaves, a little at a time. Now, that celery, to my mind, is the same thing as cabbage; it wants to be immature. If you have planted early and brought your patch to maturity there is every chance on earth that you will have disease, because disease attacks the plant that has maturity, whereas, if the plant is in good growing condition it will remain clean.

A MEMBER: When do you get that early celery out in the field?

W. J. Cooke: Early in May.

Delegate: The same time as cabbage?

W. J. Cooke: Not quite as early. We get the early cabbage out the last week in April. We have had the celery freeze solidly when we get it into the field, but by using the Skinner irrigation early in the morning we save it. If we find a heavy frost coming we get up at four o'clock in the morning and turn the Skinner on and save it.

A Delegate: Do you spray for blight?

W. J. Cooke: Yes, and for Danish Plant bug we use Bordeaux mixture and half a pint of Black Leaf poured in. We had some of the rust that Mr. Davis mentioned, and I would like to ask Prof. Crow if he has had any trouble.

A. H. MacLennan: We have had off and on a little trouble with that. It is simply a reddish brown mark on the stem, which eats sometimes very considerably on into the side of the stem. Some men claim there is some bacteria latent in the soil which is affecting the stem which causes this. I have always believed it to be another form of blight.

W. J. Cooke: This year we lost considerable; while one plant would be free others would be attacked. I consider it far more disastrous than blight because the spraying seemed to have no effect whatever upon it.

A member asked Mr. MacLennan if Brown Slug had anything to do with it.

A. H. MacLennan: It might have.

A Member: We had Brown Slug but managed to keep it in check by using hydrated lime.

A. H. MacLennan: I have always considered it as one of the late forms of blight. While I was at Guelph we always found that where we had an exceptionally bad dose of the late blight, we got that brown mark on the side of the stem. It went from one plant to the other, and spoilt the whole plot. That is the reason why I tried to find out from growers in the United States if they had heard anything about it. Some of them told me they thought it was the effect of the earthing, others did not seem to know what caused it.

W. J. Cooke: It is not the effect of earthing, as we do not earth our celery. It is a disease which should be borne in mind by our scientists and followed up carefully. We manure very heavily, and use nitrate of soda as a side dressing. This year we had a touch of that rust which we could not control.

A. H. MacLennan: Have you tried the effect of phosphorus?

W. J. Cooke: Only in the tank.

A. H. MacLennan: In the tank you get the nitrate again. If you work the phosphorus alone, you may overcome it. Where an excess of phosphorus is in the soil there is not so much of that trouble.

W. J. Cooke: If you notice disease in anything you have stored, it would pay you to overhaul that bin immediately. I stored a bin of carrots this year and they developed stem rot, probably 15%. We immediately overhauled the bin, sorted everything out that showed disease, put them back and saved the rest.

An idea just occurred to me while listening to the discussion, and that is, is it possible that it is immaturity which carries the potato through winter storage and makes it valuable for seed, or is it that because of its immaturity it goes through storage better than a mature potato. This is something that came to my mind some time ago in thinking of immaturity.

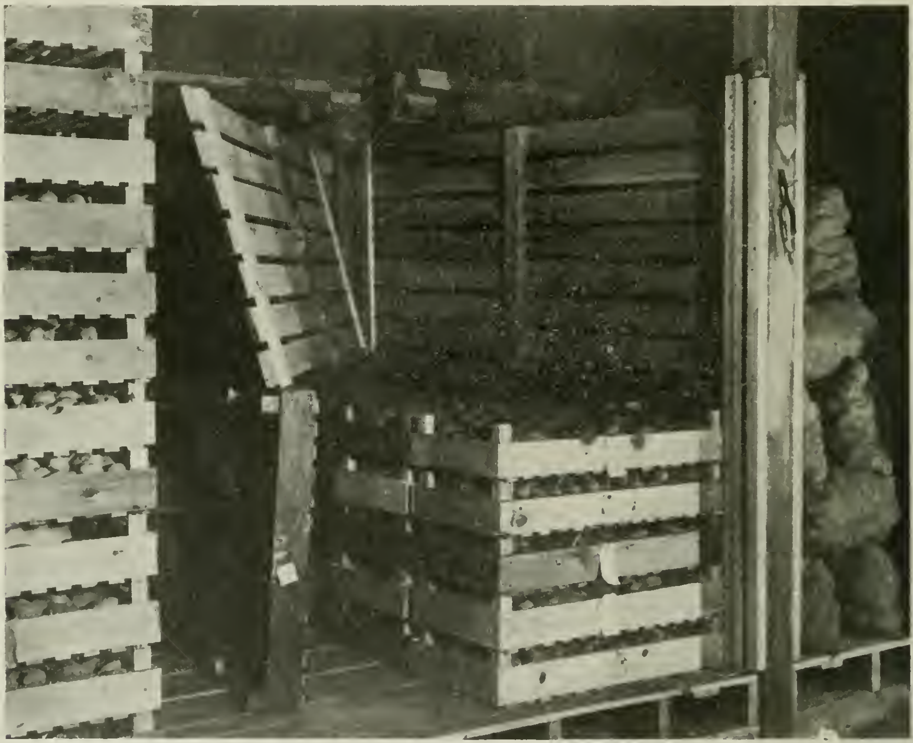
F. F. Reeves: In countries where there is not the severe winter we have here—as in England—they always get their seed potatoes from a part where they are more immature than in the district where they are planted.

W. J. Cooke: They do not have to store those potatoes?

F. F. Reeves: No.

A Delegate: I know a grower in England who has tried this immaturity plan. When he is digging his potatoes, he saves all his seed from the first digging when the potatoes are more immature than later on. He selects only the largest potatoes and claims that he can get a crop two weeks earlier by using that crop for seed.

T. W. Bamford: We planted celery on the 15th of June and this week will finish it up. It is coming out just as it went in. It was immature. We stored it in an ordinary cellar, solidly packed on the bare ground. I took it up myself and the roots were very wet.



Interior view of Storage House, showing raised, ventilated floor, slatted division walls, and also small bins for seed potatoes.

W. J. Cooke: Is there a clay bottom in your cellar?

T. W. Bamford: Yes. And I use the Golden Paris.

W. J. Cooke: You are, I believe, on a place that has not been used as a garden for many years.

T. W. Bamford: The celery was free from disease and immature, and it has kept. We used boards. What is the objection to paper?

W. J. Cooke: My men are used to boards and they might not make a success with paper. Probably the non-use of paper was due to lack of experience and to the fact that agriculturists are always a little reluctant to use new methods.

F. F. Reeves: I have used paper for nine years. It is perfectly satisfactory, and I would not go back to boards again if the boards were donated to me.

H. Second: There is nothing like the paper.

HOW TO PROMOTE GREATER CO-OPERATION AND SOCIABILITY AMONG THE GROWERS.

W. J. COOKE, CATARAQUI.

In promoting greater co-operation amongst ourselves we have a good many guides to go by. I believe our manufacturers have been co-operating amongst themselves for a good many years, if we can believe the papers. Now the manufacturers of this country and in the United States are men who have considerable wisdom, and if they co-operate, it is a sign that it pays. They have been co-operating to bring their industry up to a profitable standpoint, and I believe the high price of machinery is evidence enough of that. They have so arranged the making and selling of machinery amongst themselves, through co-operation, that when you go to buy you have to pay the price. They did that purely and simply so that they would gain profit for themselves. They may have some slight ideas of greater efficiency so as to bring down the price, but I think 99% of their idea of co-operation was to get some gain through it. In later days we see co-operation amongst labor. That was a co-operation of necessity. There was a time that you and I can remember, not many years ago, when labor was in difficulty, they actually were not making enough to sustain themselves in a decent way, and co-operation was forced upon them. Individually they were powerless, and through their labor unions they have co-operated until to-day most of us who have to hire labor think they have overdone it. They have gained recognition. We have a Labor party in our Ontario House all through co-operation. Even the farmers (we can surely take lessons from them, being so closely allied to us), are ruling in the Provincial House to-day simply through co-operation. The farmers who fifteen years ago were held, at least by the city people, to be of little importance as a political force, are to-day the ruling party in the province. That was all done through co-operation.

The way for us to look at co-operation is that we are in dire need of it. We as vegetable and fruit growers are placed in a position to-day where we are in great need of co-operation. It is only as we stand together and pull together that we can make our industry profitable in the years immediately ahead of us. On the one hand, we have the big interests fighting their battles, and that is against us; we have labor fighting their battle, and that is against us. And unless we co-operate and show a strong front and fight our own battles we are bound to become a nondescript business. We are bound to get where labor was twenty years ago, barely eking out an existence, because the weakest must fall. The taxes of the country (and taxes there must be) will fall where there is the least opposition. We as vegetable growers must oppose the combined movements with a combined movement on our part to hold our own. That is the great reason for co-operation to-day. In the changing affairs and the unstable condition which our country is in to-day, those who do not oppose a unified front to other strong efforts are going to suffer. Therefore we have a community of interests, the vegetable growers in each community have an interest to co-operate together for the best interests of their community, to send representatives to the general meeting, to meet the growers in other districts, so that many minds together may formulate policies which will be for the best of all.

Another thing that I brought up last year, and I think is an idea which we should go ahead with, is that there should be some advertising of our business. When you consider all the minor products which are highly advertised, consider our product, which is a valuable one, and which would be so easily advertised—is it not folly that we do not more of it; it is no wonder that we are not held in the repute by the Government and the people in general that we should be. We produced last year a cheap food. We could put up a strong advertisement as to its being the cheapest food on the market. We also have a product which, especially in the spring months, is a helpful food, and we could put up a strong advertisement for it as a health product. And the result would be that in a time like the present we could sell our product without a glut, because there is no doubt about the value of advertising, otherwise other industries would not use it. That is something which every local branch could take up, and which could be taken up in a general way. Those advertisements could be drawn up in the central office and sent to branch offices just ahead of the product as it comes on the market. For instance, in the spring, when the early greens come on, when corn is coming on, tell the food value of corn; when tomatoes come in, tell the food value they have and their preserving value. We do not want to take the expense of advertising and let the other man get the benefit; therefore we could do this co-operatively.

Again, in experiments which we occasionally carry on, we do not co-operate with our neighbors in that. If you are conducting an experiment with a special fertilizer, if it proves a success, bring in your neighbors, individually or collectively, and show it to them and what it has done. Give them the advantage of it. Co-operation with your fellow-gardeners in anything you do, because if they benefit, you will.

If we do not do this of our own free will it will be forced upon us. To my mind the probabilities are not very bright for our business. Anything I go to buy I find is very dear. Labor shows no sign of weakening. Yet we have established the very bad precedent this year of selling our goods at a very low price, and people, when hard times come, will expect that we are going to sell our product at a low rate, and unless we co-operate to in some way overcome that, we are going to find that while we sell our stuff at a low rate we are going to buy at a high rate, and it is going to be disastrous. Now we should be all one in the idea of what we are going to do this year, and in the years to come. Each local association should get together and decide what is to be done as conditions arise. Arrange with your growers whether you are going to curtail the end of your business, which is not as profitable as it should be, or whether you are going to sell at the cheaper price.

J. Lockie Wilson complimented Mr. Cooke highly on the splendid address given extemporaneously, and expressed the opinion that perhaps hereafter it would be better to call upon individual members to speak without any notification if they would bring out as many good points as Mr. Cooke had.

If you do not stand together in your common interests, if you do not become organized so that you will be a power in the land, I do not look for a very bright future for you. It is up to you to get into this co-operative movement as an Ontario Vegetable Growers' Association; put your case fairly before yourselves and then place it before the Governments of this country, and I think you will succeed. In the fifteen years that I have been with the Department the grant of $800 has been the same, until last year it was increased to $900. The value of the dollar has decreased one-half. That little grant that we get really represents only about $400 or $500 of the money formerly given, for the splendid work that you have been doing all these years improving your soil, spending your money for fertilization, and yet the powers that be, because you have not made any combined effort, simply regard you as a nonentity. The big manufacturing organizations ask for what they want, and they get it. Therefore, stand together, hand in hand, shoulder to shoulder, increase your membership, increase your branches and go down and make a demand to the Governments of this country to deal fairly with you in the way of a grant. It is all very well for them to spend money in buildings, colleges, etc., but we want to get these things down to the people.

It is up to the members to stand together more solidly than ever, and go down and ask the Government for a couple of thousand more of a grant, so that the Field Crop Competitions and other work on behalf of the vegetable industry may be improved and continued.

"POTATO GROWING CO-OPERATIVELY."

J. H. PURVIS, BLACKWATER.

When I meet men that are giants in production, professors and men who have given these subjects a great deal of thought and study, I am sure that I fail to find words to properly express myself on the subject of "The Co-operative Marketing of Potatoes." We have been producing potatoes for the past eight or ten years, specializing on them to a certain extent, and the growers in the district where I happen to live in Ontario County are raising quite a few potatoes. There is a man here to-day who is authority for the statement that in the district of Zephyr, in Ontario County, the quality of potatoes to-day equals that of those produced in New Brunswick. So with a production such as we had in the past year I think perhaps a discussion on the subject of production might be of interest to this gathering.

I am an enthusiast on sweet clover, and have been growing the plant for the past eight or nine years, and the particular field that we had our potatoes in had produced three crops of sweet clover. We follow the three-year rotation—grain, sweet clover, then potatoes. So on our 100 acres of land we have 33 acres grain. 33 acres sweet clover, and 33 acres potatoes. And we have never yet struck as good a fertilizer as sweet clover. It is giving excellent results.

So far as the planting of potatoes is concerned, we follow up the plan that the Agricultural College has adopted. We put them in with an Iron Age potato planter, operated by two men. We plant rows three feet apart, and put potatoes in fifteen inches apart in the row. In Guelph I believe the best results were obtained by putting potatoes in twelve inches apart in the row. We will try that out this year.

I have been, in connection with the United Farmers, throughout the Province of Ontario for the last two years, and from observation I have found that a great many men who produce potatoes know very little about the plant. You all know that the root system is what contributes to the potato crop, and the root system in the potato plant is of a peculiar nature. As near as I can find out, the root system in asparagus and potatoes is very much alike, and the roots, after they spread out in the ground, have very little penetration. A weed that grows on the roadside has very great penetration. The potato has very little penetration, therefore it is necessary for us to have the ground so that those roots can penetrate.

Potatoes will do very much better in land where the soil is loose. We plow sweet clover in the fall and spread the manure over the land. In the spring we gang and put the potatoes in. I find that a lot of men, once they have those potatoes planted, when they find the work pressing, leave them until potatoes come up. By the time the potatoes are fit to scuffle, there has been a big growth of weeds and they scuffle closely to the plant to save hoeing. We believe in that system you may destroy 50 per cent. of your potato crop for the reason that when you go along with your scuffler you tear the roots on the side of your plant and then any amount of hilling up will do absolutely no good. About 3 or 4 days after we plant potatoes we follow with the harrow, then we have Massey-Harris discs follow along and hill up again. That puts the row in its original shape. Then follow with a harrow again, then with disc. We follow with that operation until the plant is ready to come up. Weeds are all killed, moisture is conserved and, I believe, the air is let into the soil, which, in the variety of potato we grow—the Irish Cobbler—is a fine thing, because in the spring of the year the soil is cold and it is necessary to stir it as much as possible and warm it up. In that operation there is no cutting on the sides, so that the plant roots are absolutely not disturbed, and we have found by measurement that those roots will come out in a horizontal position from that potato fully a foot.

J. J. Davis: Is that before the potato gets through the ground?

J. H. Purvis: No, while the potato gets in very advanced stage, but if you cut them off in their infancy they will never get out there. If you go along and cut those roots off, no matter how much hilling or plant food you put in, you cannot bring the plant to its best stage. If you leave the root you have fully 75 per cent. of the ground to nourish that potato.

We used last year a commercial fertilizer of 4.8.10. We paid $90 a ton for fertilizer, and when we marketed those potatoes we got the value for the money. Last year early potatoes were a good price, and as we live fifty miles from Toronto we market by the carload. Had we been near enough to the city it would have paid us ten times over to have teamed them in, but under the circumstances, by the time we marketed those in August we found that the others had caught up, and that the tops were quite dead on the ones that had been fertilized. Now, if we can get to the early market in the city of Toronto, instead of allowing the Americans to export in here half a million bushels a season we, through the aid of fertilizer, might be able to capture that market; and I often wonder if it is not being overdone.

Now the yield that we had last year was 240 bushels to the acre of marketable potatoes, and we believe that taking that over a number of acres, when the yield for the Province was just 152 bushels, it speaks well for something, whether it was the cultivation, the preparation of the soil, or what it was. We just put on eight loads of manure to the acre for that whole field. They were spreader loads. On account of the shortage of labor last year, we did not get the manure out until spring.

We put a great deal of stress on the fact that sweet clover is the fertilizer for potatoes. As to the cost of producing those potatoes, we find that people who have gone into the cost of producing potatoes have it as low as $40 an acre. Last year, on account of the high cost of seed, we reached the grand total of $94.75 per acre. Of course, in the rather abnormal year we had, they were not marketed at a high price, and it netted us after the cost of production was deducted $94.05, so that perhaps that per acre sounds pretty good. You would wonder perhaps that we would advocate any system of co-operative marketing after getting that much money on an acre of potatoes, but we believe that the system of co-operation that has been outlined to-day is a wonderful thing, and we believe it can be carried along the line of potatoes as well as anything else.

A MEMBER: Do you figure manure in your cost of $94. Seed potatoes were $6 a bag.

J. H. HARRIS: The price we procured those potatoes at was $4 a bag. I did not take it at market value at the time we planted them because I did not always get the highest market price. We figured our manure was worth $12 per acre.

Expenses on the crop are as follows:

Rent of land	$5 00
Plowing	4 00
Ganging	3 00
Roll harrowing	2 00
Planting	2 50
Manuring	5 00
Manure value	13 00
Scuffling five times and harrowings	7 25
Digging and shipping	20 00
Seed	28 00
Cutting	3 00
Greening	2 00
Total	$94 75

We put a mixture on for blight on early potatoes, but nine times out of ten we doubt if it paid for the operation. We planted home grown seed, it was purchased right in the neighborhood, from a neighbor.

Q.—How long had it been grown there?

J. H. PURVIS: Four or five years.

Q.—Were you troubled with scab?

J. H. PURVIS: No. Our contention is that perhaps the sweet clover has something to do with it. I have never heard a man in that district complain where he has grown potatoes on sweet clover of having been troubled with scab.

Q.—Do you always plow in the fall?

J. H. PURVIS: Yes. The Agricultural College recommends that. We find we get a much cleaner crop where it has been fall plowed.

Q.—What is your land?

J. H. PURVIS: In Ontario county it is not heavy at all, although it is not sandy. It is just a nice average sandy loam.

Q.—Would you not think red clover would be as good as sweet clover?

J. H. PURVIS: The reason we went into growing sweet clover was because we could not grow the red. We have never had one instance where sweet clover was winter killed.

Q.—Do you seed down with grain?

J. H. PURVIS: We seed down with grain, spring sown. We sow ten pounds per acre. We found by experimenting, where we have applied the manure in the winter we get much better results.

Q.—Were the potatoes matured before you dug them?

J. H. PURVIS: Yes, pretty much; we saved 100 bags for seed, which we considered were rather immature. Nearly all the farmers in that district grow Cobblers.

Q.—What is your experience in regard to sweet clover as a food for cattle, horses, etc.?

J. H. PURVIS: We have put it in our silo on two occasions. One was where we cut it green in the field about the first of June. We found it was too sour. We put it in on another occasion, and think we left it a little too dry on that occasion. But on the farm where they are cutting sweet clover for seed, they put the straw in the silo, and my nearest neighbor tells me that he never had ensilage give as good results as that sweet clover-ensilage mixed with corn. We believe it is superior to the very best oat straw. Cattle will eat it dry, although for a while we practised mixing it with turnips, and farmers find the animals do exceptionally well on dry sweet clover cut up, made as fine as possible.

Q.—Did you ever cut it as a hay?

J. H. PURVIS: Yes, our best results were when it was mixed with timothy. When it comes to the flowering stage it matures very rapidly.

Crop of Green Mountain Potatoes near Sault Ste. Marie.

A DELEGATE: A neighbor grazes his cows on the sweet clover and allows them to take the first growth; then the second growth makes fine hay.

A DELEGATE: Supposing one sowed sweet clover as early as they could, how soon would it be ready to be plowed in?

J. H. PURVIS: By the end of June. A much better plan would be to seed the fall before. But if you neglected to do that, the next best thing is to do it in the spring. I recommend sowing a width of red clover around the outside round the fences as this prevents the sweet clover from spreading into the fence strips.

So far as co-operative marketing of potatoes is concerned, I am in favor of forming a Provincial-wide association for the marketing of potatoes. That might be in conjunction with the Vegetable Growers, but I believe there is plenty of work for an association along the line of potatoes, and when we look at the importation from the United States, 500,000 bushels, and when we see that New Brunswick can successfully compete with Toronto, after paying 51 cents freight, we wonder how they do it. It is because they have a Provincial Association. They produce standard varieties. Now we are far behind in the Province of

Ontario in the way of producing standard varieties. I believe the Rural New Yorkers, Cobblers and Green Mountains are the best varieties. This Association could impress upon the people the necessity of having these standard varieties, because we could get better yields, and when we come to market those potatoes, several farmers could join together and ship a carload. Around Zephyr some of the dealers have stated that there are as fine potatoes as ever came from New Brunswick. These are all Irish Cobblers.

Another valuable thing an association could do, they could find out the number of acres planted. As the crop progressed they could have bulletins coming in from every part of the Province as to how the crop was progressing and giving definite information as to what could be expected in the way of price. At the present time we are competing with one another. We do not wish to interfere with the law of supply and demand so as to hurt the consumer, we do not wish to build up something that will help only the producer, because if the spirit of co-operation obtains and Canada's burden is to be borne, we must help one another. But this spirit of co-operation can be worked all along the line.

The surplus of potatoes could be manufactured into potato flour, glucose or starch. I would like to see a meeting of all those interested: there is an immense amount of work to do along that line, because if we have these standard varieties and have certified seed (we advocate northern grown seed) there is no doubt that an association that knew of a hundred carloads of certified seed could dispose of those potatoes in the United States for seed at a higher price than obtained here. That certified seed has to be inspected, or else it cannot be certified. Then if it is certified and this association has some means of storage, whereby they can be placed in the proper temperature, then those potatoes will keep until spring for sale in competition with those in the United States to our advantage because of freight charges.

J. Lockie Wilson: What is potato flour used for?

J. H. Purvis: It is mixed, I believe, with white flour for numerous purposes, but I don't know whether the price that you could obtain for potatoes for this purpose would warrant production. But if there was a surplus production, one of these factories could be held by this association and a market could perhaps be created for the manufactured article that could not be got for the raw material.

Hy. Broughton: I was very much pleased with this address on potatoes and co-operation. I am heart and soul in sympathy with the movement. I agree with Mr. Purvis when he asks: "Why should we import half a million dollars worth of potatoes from the United States when we can grow them as well ourselves?" and I am very pleased to know that in Ontario County they are starting, as we started in Sarnia about fifteen years ago, and to-day in Sarnia district we have a co-operative society where during last year there were between 13,000 and 14,000 bags of potatoes exported from a little corner of the township of about 4 by 4 miles. Most of those potatoes were sold for $4 a bag.

With regard to fertilization: he spoke of planting potatoes in rows three feet apart. While I don't wish to appear as teacher or dictator, I have been in this game a good many years and I find that the best results with us have been obtained by putting them about 30 in. to 32 in. apart, far enough for the average potato to grow. That would mean quite a difference to the yield per acre, and increase it considerably.

With regard to fertilizing. I have a field that I have grown potatoes on without any change for sixteen years. Mr. MacLennan last year was good enough to send me a bag of fertilizer to test on potatoes. The conditions were that I was to plant an equal number of rows across the field without any fertilizer, and the same number of rows with it. That would bring it to about half a ton to the acre. On a row 26 rods long I got a bag of potatoes more on the fertilized row than on those that were not fertilized. Now you can figure up what the profit would be if a fertilizer was used. I use fertilizer at 2-8-2, which cost me about $42 per ton. I got splendid results therefrom. If made about that strength you will get just as good results as if made from the higher grade, by using sweet clover.

In regard to co-operation: I would like to see something done whereby we could find out if possible the acreage in early potatoes, the acreage in late potatoes, and all during the season find out approximately about what the yield will be. By so doing we would have some idea of our own resources, some idea of what was to go on the market and then, if we went a step further, and organized a society that would have something to say about the prices, we could possibly benefit ourselves and the consuming public would not be injured in any way.

PRODUCTION AND MARKETING OF VEGETABLE CROPS.

G. B. Hellerman, Waterford.

In the programme of this Convention, there are found several addresses that cover the first item, Production. This has been well presented and it is not necessary to go further with the subject. There is every reason to believe that production has been improved and better results are being obtained through information given out as results of experiments, and research, by and through the vegetable specialist—the small fruit growers have also received great benefit through the same source.

Marketing or Distribution.

The matter of distribution at this period seems to have become quite a question, that is "to market" our products in a profitable way. The matter is being talked about by our representatives in their assembled places—bankers, merchants, and others are sitting up and taking notice. Why? Because, the action involves something that is more or less of vital import to them from a financial point of view. The grower has been receiving too low a valuation on what he produces and too high a valuation on what he has to buy. How these problems may be solved and adjusted I do not know. There may be a point mentioned. Improvement may be made, through Co-operative Marketing Associations, the standardization of products, the improvement of transportation, storage, etc. There is need of more adequate financing of farm and marketing operations. We are suffering from top-heavy distribution.

The whole matter of marketing rests upon co-operation. Co-operation means not merely the physical co-ordination of industry, it means the spirit with which the labor is performed. Co-operation is not a question of wage or hours of labor, it is an agency for the betterment of each one interested in the production and distribution of products, it is a closer kinship and deeper appreciation of the necessity of mutuality.

Rapid information as to markets and the conditions existing therein (either over-supply or lack of supply) is necessary in these days of rapid transactions. Market quotation by wireless is being arranged for in one section of the States—it is reported. Through this service the aim is to make available to each grower the latest possible market information, the service to be available at the end of each market day to the individual grower who will install a wireless outfit. Quotations are being flashed from the Government Wireless Station at Washington at 5 o'clock each evening.

As to the working out of this rapid method of information there seems to be nothing to say (time will tell), but we are in a period of rapid advancement, and development unknown, and the period demands quick information, decision, action, so that profitable results may be obtained, and encouragement may be received by all.

In connection with co-operation, the Federal Government in the United States are backing the State Government and the State Government is backing the grower. In Connecticut he said, the growers have made wonderful progress.

F. F. Reeves: I do not think in the City of Toronto it would be possible to co-operatively sell the stuff grown by gardeners. With all the growers and each one of them growing a mixed product, that is something of everything, if we started a co-operative organization, it would not work.

G. B. Hellerman: The growers in Bridgeport, Conn., grow a mixed product.

F. F. Reeves: In a shipping market co-operation is comparatively easy, but in a direct selling market I have not been able to figure out a feasible scheme, nor have I heard anyone else who could figure out a co-operative scheme. Then the worst and the hardest feature is that we all seem to be naturally a little distrustful of one another. If a man comes along and advances a scheme like that, they ask: well, what is there in it for you? I do not believe we could sell co-operatively in a market like we have in Toronto.

G. B. Hellerman: Notwithstanding the fact that that state of affairs does exist, yet to-day calls for a bigger man than that. A man growing into a better manhood, gets to be such a man, so big in his views, that he would not suspect his neighbor:

F. F. Reeves: I can understand co-operation where you can control output but we cannot control output.

G. B. Hellerman: That, I claim, is to some extent because we do not have proper information beforehand of what we should produce. Now, what I mean is this: I know of a man who is producing vegetables in a large way. Of course it is to his interests to become informed of what they are growing in the sections that are growing the crop that he will produce. In travelling through the country he found out that in Texas and in Oregon cabbage was going back, and he wired back to his own farm to grow all the cabbage they could. Of course not many growers grow in so big a way as that, but in a community where they were in touch with one another they could inform themselves of the acreage that was devoted to any particular crop.

J. Lockie Wilson: The question was asked a couple of times this afternoon: What are you going to do about it? There is just one way you can do it, and that is by keeping before you the old saying: "The wolf is the strength of the pack, and the pack is the strength of the wolf." The pack can't do much without leadership. We are large producers. We are as large producers as the Niagara Fruit Growers. I would like very much if I were relieved of other things, to take hold of this co-operative proposition, and I am sure I could make it go, but I am overwhelmed with work in my branch of the Department so that I cannot do it. Who is going to do it? Do as the fruit growers have done. Get the Minister of Agriculture to say to you, as he said to them, "Get the biggest man in Ontario at the head of your institution, get him to organize, and I will pay the shot. Don't hire a cheap man as head of this Fruit Growers of Niagara."

Perhaps we could work up enough confidence to say to the Minister of Agriculture: "You have proposed to do this for the Fruit Growers, what about us?" What is the matter with putting up a $10,000 a year man to take charge of this institution and saying that the Government will pay the cost of that man, and he will go to it.

G. B. Hellerman: While we import a great many potatoes, I know there have been 100 cars sent to the States as seed.

J. J. Davis: Last year there was a man appointed in Ottawa to bring the matter of co-operative marketing before each branch. I was appointed to bring it before the London Branch, and I found there was considerable opposition to the scheme. However, we brought it on in the form of a debate, which was the President's idea. I took the affirmative side and Mr. Fuller took the negative; so we had the thing discussed pretty fully both ways. The outcome was the meeting did not appear to be ready yet for co-operation, but I had the satisfaction of hearing some of the growers remarking amongst themselves after the meeting was over: "We shall come to that yet." The way I outlined it to them was that it would mean that we should pool all our products, and hire a competent man to do the selling instead of every man being his own salesman. We are now competitors where we should be playing into each other's hands. To my mind it is entirely feasible to pool our products and hire a competent salesman to do our selling, and we ourselves put all our efforts on the production end and leave someone else who is more competent to do the selling end. However, Mr. Reeves put his finger on a very weak spot when he said we were a little suspicious and distrustful of one another. Of course, there are a lot of details which would have to be worked out and I think could be worked out successfully and satisfactorily. The thing is when are we going to start to do it.

C. F. Kitney: The only way to bring this to a head is to appoint a committee and try and work out a satisfactory plan.

A Delegate called attention to the western markets, stating that without organization co-operation was worthless. You can, he said, localize your centres, market your crops from one centre, with a large central office where the man in charge would be conversant with markets and in touch with financial condition of the buyers in the west. This delegate thought this would be the only way to overcome the difficulties which exist to-day, as the transportation was a big item.

A resolution was moved by C. F. Kitney, seconded by T. J. Fee, That a committee of Messrs. Hellerman, Waterford; T. Delworth, Weston; Henry Broughton, Sarnia; J. H. Purvis, Blackwater, and W. H. Stewart, Aylmer, be appointed to go into the matter of co-operation. Carried.

CO-OPERATION.

Thos. Rowley, Leamington.

I wish to give you to-day in all earnestness, a few thoughts on a subject which we call co-operation, and as an example is always better than precept, and as it is much better to go and do a thing than to say how it ought to be done, I shall hope to interest you with now and then a short story to illustrate my theme, rather than by a long sermon, even had I the ability to preach one. I am rather at a loss to know what is required or desired of me on this subject, whether you expect me to give you our experience in the Erie Co-operative Company or to speak on Co-operation in general.

I shall endeavor to the best of my ability to carry out your wishes, and when I am through you will probably say of me as you have no doubt said of other men who have prescribed for you on former occasions, possibly with just cause, that my medicine failed to reach the vital point, or in other words, did not touch the right spot. To me it does seem foolish to get up here and talk to you on general co-operation because there is not a person in this hall who does not believe in and realize the benefit of co-operation. If you don't believe in it why do you belong to the different churches, clubs, lodges and societies or why are most of you married, why do you insure your life or buildings in an insurance company? Can you not insure your own life and property? Why are you to-day attending this meeting, if you did not believe in co-operation, you could remain home and plow your lonely furrow, but even in that case you would be compelled to have co-operation with your horses and plow. If you do not believe it, put a real balky team on the plow and see how many acres you will get turned over. Your worthy President or ex-President believes in co-operation for if he did not he would not have travelled two or three hundred miles to induce the growers in the Leamington district to join the Vegetable Growers' Association, and I am pleased to say that the growers up there realize the value of co-operation enough to give him over one hundred members in and around Leamington. That is the kind of belief or faith that is some good, there is no use pretending to believe one thing and acting another. That is the kind of belief that is keeping hell populated, and that same belief is what has kept the tillers of the soil, vegetable growers in particular, from getting anywhere near their just rewards, and will continue to do so until time is no more unless we accept the prescribed medicine or apply the remedy at our disposal; namely, co-operation or organization in its most ample form.

Then again there are some people who are honest enough to claim that they don't believe in co-operation or organization for the tillers of the soil, and try to make us believe that it is not practical. That class I have more sympathy with than the one who claims to believe in it, and acts contrary to his belief, but even he is of no value to the agricultural class in general, and very little to himself, for, in nine cases out of ten, failure is borne of unbelief. And why should not co-operation be good for the farmer when it is admittedly good for all other walks of life such as manufacturers, lawyers, doctors, ministers, bankers, teachers, right on down to the newsboys and bootblacks and many others I might mention. Why if you set a dog on to the sheep in the field, or pigs in the barnyard, you will see them organize immediately by at once gathering together. The dog for a considerable time has been chasing the farmer, is he less intelligent than the sheep or pig?

Some of us are very loyal to one or other of the great political parties whose present leaders are doing their best to prevent the farmers from organizing, and I am not at all surprised to see these great political leaders doing all they can to prevent the uniting of the farmers into a big political machine.

From time immemorial our class calling or profession, whichever you like to call it, has been pitted one against the other for the benefit of one or other of the old parties; a case of getting the farmer to play catspaw and pull the chestnuts out of the fire for some other person to eat. I have no doubt that there are men in this audience who like myself have, when an election was coming on, gone into caucus meetings and with others scanned the voters' list, going up and down every concession and marked the list something like this, Conservatives, C., Liberals, L., Doubtful, X., and there would be very few of the latter, in fact, I have known us to figure out a whole polling subdivision, and not be out more than one or two votes. But I am pleased to say that the farmers are experiencing a change of heart along these lines.

A Colorado Storage House made of sod.

One other illustration and I am through with the general side. The great European war is still very fresh in our minds, and with some of us will remain a very tender and almost unspeakable subject as long as life shall last, and I am guarded from transgressing along these lines by a firm conviction that there are members of this audience who have suffered and bled, yes, sweat drops of blood on behalf of those who were near and dear to them and who were being punished in the early part of the war on account of the lack of organization in the great allied armies. And although our commanders were doing all that human beings could do to improve that condition it was well on to the end of the war before they accomplished their desire. In fact, it was not complete until Marshal Foch was given supreme command over a combination of all allied forces, and you all know the glorious results. That is how it will eventually be with the fruit and vegetable growers of this country. We have been for some time organizing in companies, in some parts we have even reached battalions, almost divisions, next will be armies handled and manœuvred by one supreme commander. When that time comes we will have attained the height of our ambition and accomplished all that we could be reasonably expected to do.

The one great question to decide will be who shall be supreme commander, and I trust when that time comes, a time which I fully expect to see, we will be as fortunate in our choice as the allies were in Marshal Foch. For it has been said by some one of the ancients that an army of stags with a lion as a leader is more formidable than an army of lions led by a stag.

Now, for me to speak about the Erie Co-operative Company is a rather delicate matter because it is almost like talking in public about your own family affairs, which I think you will agree with me shows very poor form. In the first place allow me to say that I hardly expect the medicine to produce an immediate permanent cure because we have for some time been prescribing this same treatment to some of our members, and have not as yet produced the desired effect, but I think there have been times when the patient would have preferred death to another dose of our medicine, and if a person gets into that state I imagine he is on a fair way to recovery for he will either be dead to us and quit being a member, which is very rarely done, or he will take his medicine like a man, and endeavor to play the game in a genuine co-operative way. Two of the most dangerous and almost the only diseases which affect our members at all seriously are in buying supplies or trying to put one over on us by selling outside the company on days when they think it possible to get a nickel more per basket for their goods. To you these may not appear at all serious but they are very much so. In fact, they really become very loathsome, quite a fever accompanies them which if not immediately checked becomes very contagious. The medicine we prescribe for the former, that of buying supplies outside of the company, is to endeavor to buy the same line of supplies at a figure low enough to enable us to sell to the members who remain loyal to the company at a price at least as low as the individual can buy outside and at the end of the year return to the loyal member at least five per cent. profit and quite often ten or twelve per cent.

I will give you one or two cases in point: some time ago one of our members came to me and wanted a price on twenty tons of a certain line of supplies. I gave him the price we were selling at, he claimed he could buy goods equal to ours at a slightly lower figure, but he would give us the preference providing we met the other fellow's price which was only ten cents per ton less than we were selling at. I refused to cut the price, telling him that I could not consistently give him any reduction as every member should and must be equal. The result was he gave his order to an outsider at a gain to him of ten cents per ton on twenty tons, or a total gain of $2. At the end of that year we returned to our members $2.50 per ton profit on the same goods or a total of $50 on the twenty tons. That, I think, was pretty good medicine, and should have the desired effect.

You will probably want to know how we do this. Well, in the first place, we buy in such large quantities that we can generally get a much better price than an individual can, and we seldom or never take an agency for anything unless we are given control of the county, or at least get a commission on everything sold in our district. In quite a few cases, even some of our competitors are unknowingly paying us a commission.

As to the treatment prescribed for the member who endeavors to put one over by disposing of part of his goods other than through the company, I shall have but very little to say, because for that particular disease we have a formula known only to those on the inner circle. However, I will say this, that if a man can sign the by-laws and become a member of the Erie or any other co-operative company knowing that they distinctly state that he shall deliver all his products to the company and then wilfully violates that obligation, he is placing himself in a class the name of which should be sufficient punishment to any person who at all respects law and justice, and in reality is more to be pitied than censured.

Now, a short history of the Erie Co-operative Company and I am through. In the spring of 1913, eighteen growers met and decided to organize under the name of the Erie Co-operative Company. They were for two years the only fruit and vegetable company doing business in the Leamington district, but at the end of these two years about an equal number of growers decided to form a company under the name of the Leamington and Western Co-operative Company. Still another company of dealers was formed acting under the name of the Essex Growers, and we also had an individual dealer fairly well entrenched in the person of E. E. Adams, besides a number of small dealers. They all continued doing business until 1917, when the Erie and the Leamington and Western decided that it was to their interest to amalgamate under the name of the Erie Co-operative Company, their membership in the meantime having increased to 63. They then, like Alexander, commenced to look for other worlds to conquer, and decided to buy out the Ruthven Cold Storage with a membership of 27. Like other wise men from the East they travelled still further west and took in the Kingsville Co-operative Company and opened up a shipping station at Harrow. Finding that there was nothing further west to interest them, they returned home, set their house in order, and endeavored to build a home suitable to accommodate their now very large family of members. They then remained for two years somewhat satisfied and more or less contented, when they conceived the idea of buying out the Essex Growers in Leamington, and at the same time opening up a branch near Blenheim in Kent County. This was in the spring of 1920. What they are going to do in 1921, I am not prepared to say, but I will be very much surprised if there are not some further developments.

However, whether there is or not, I think I can say without any fear of successful contradiction that during these seven years, we have at least made satisfactory progress, when you consider that during that time we have increased our membership from 18 to 339, our business from $25,000 to $705,000, improved our credit or financial standing from a deficit in the early part of the game to a surplus of $56,000 in 1920, and eliminated or exterminated, whichever you like to call it, all our competitors except one. And I fancy that lone one is in a somewhat similar position, to Cassabianca on the Orient.

I have no doubt that some will say, that is all right, co-operation no doubt is a success with you people up there in the Leamington district, but with us it is different, it is not workable because we are not all of the one mind, we have different opinions. Allow me to say that if you have different opinions the more necessary it is to co-operate, and the more successful will be your organization. For men all of one mind do not make the best co-operative company, any more than one kind of material will make the best finished product. I will give you an illustration. You go out into the streets of this city, you see and walk on the sidewalk and you will readily admit that it is compact and hard. What made it so? The water alone would make a very poor sidewalk, the cement alone would blow away, and the sand by itself would be far from satisfactory.

But you mix the sand, cement and water together and cohesive force packs the particles into intense sociability. So it is with mankind, we have different opinions and are differently constituted but by blending or mixing them cohesion takes place, and we are enabled to do so through organization.

I am at a loss to know whether any of you gathered here to-day are seriously considering organizing a co-operative company. If you are I think I can give you a little advice which may be of some value to you in the future. In any case it won't cost you anything, as my brand is not of the legal or costly type but just the general run, always cheap. In the first place, be careful to get a good set of by-laws to work under. Then put the best material possible on your board of directors, they in turn choose the best manager available, even if he does cost considerable more money than a poorer one. It will be money well spent.

Now you are ready for business and let me say to the rank and file of the members that when you have done all this, leave your board and management alone, to work out your salvation or otherwise. There is nothing worse in a co-operative company than to have some member always nagging or complaining about the management. If you have any good advice to offer do it in a nice friendly way, and you will generally find your staff ready to receive and act on it. If they do not act on it you may rest assured that they have given it their best consideration and did not find it applicable. You will never get perfect management any more than you will find a perfect man.

My last word of advice to men starting out in the co-operative line is not to place too low an estimate on human nature, or be tripped up on the way to eminence from too great a reverence for upper standing, and too little for understanding.

J. LOCKIE WILSON: I can understand your co-operative organization in one particular district, but you see our branches are scattered over all this Province. It is going to be a more difficult problem to form a co-operative organization than in your section. You are a group of men, in one locality, level headed, broad, sane minded, but with us it is a little different problem, being so widespread.

THOS. ROWLEY: It looks to me as if you would, first of all, have to organize in sections, then into battalions and units. Then I hope we will be one large organization some day.

MR. STEWART: It is a big subject and that address was very interesting, but Mr. Wilson, our Secretary, has brought out that in this Province of Ontario, different questions will have to be settled in different parts. Down in Ottawa district, where I come from, we do no shipping whatever, but our product is sold there, and that end will have to be looked after to see that there is not too much shipped.

J. LOCKIE WILSON: I am going to make a suggestion. Mr. Reeves has told us we have 1,000 market gardeners within a radius of ten miles of the City of Toronto. We have our Government Buildings here. We have with us to-day the head of a co-operative branch. Why should not our co-operator, Mr. Hart, start in to organize the 1,000 vegetable growers at Toronto, to make a start at the seat of government. Put Mr. Hart at the head of it, let him get to work, give him a sufficient staff under him and let him organize and get our vegetable growers to start a co-operative organization here in the City of Toronto with the headquarters under Mr. Hart.

W. S. EBORALL: That seems to me a very practical suggestion and would make a good start.

F. F. Reeves: I wish Mr. Hart all kinds of luck. We have tried for years and I am willing to admit that we are a total failure, and I don't expect we ever will be successful. I can quite understand co-operation where the gardeners grow staple products, such as tomatoes, cabbage, potatoes, and I can understand co-operation working in a shipping point, but I can't work out how you would bring in co-operation among 1,000 gardeners in a centre like Toronto, which is the dumping ground of so many products. As I said this afternoon, we are all a little suspicious of one another. If you were at a point where you were selling your product direct to the distributor instead of having to ship it for miles, you would find quite a difference in co-operative organization. We had a co-operative organization in Toronto district one time, but it was more for buying than for selling. That went all right for a while, until some defaulted in payments, and the others had to make it good, and that fixed that up.

J. J. Davis: There was something wrong with the organization.

F. F. Reeves: If you will just stand out on Queen Street, particularly Tuesday and Friday mornings, you will see anywhere from 200 to 400 loads of produce coming in, with every variety of vegetable that can be grown at that season of the year. They talked once of making us all go to the market. They would have had to have blocks to accommodate us all. If I were in some place where I had to ship I would certainly try to get somewhere where there was a co-operative selling and buying organization, but being in a locality where I sell directly to the distributor, I am not in any way anxious. So far we have been able to hold our own. That is rather a selfish way of looking at it, but we all seem to be built that way in this locality, and it is going to be a pretty hard problem.

Mr. Stewart: Taking that sight of 400 rigs and men coming across the bridge, if you put that on one or two trucks, starting from some central point, look at the haulage you might save.

F. F. Reeves: A number of these rigs *were trucks*, and you might see three out of four which were loaded to capacity, and two of these four were *trucks*.

Thos. Delworth: I am using trucks and sometimes make three or four trips to the city in a day.

J. J. Davis: As I see it, it depends altogether on the 1,000 gardeners. If they are not ready to co-operate, and don't want to co-operate it would be the height of folly to force them.

Thos. Delworth: You will find that vegetable growers, generally, are practical men, and if you can show them a practicable proposition, you will not have much trouble in getting them in.

J. J. Davis: We have to be educated to the point where we can see that it is to our benefit to co-operate. As I said this afternoon, I put it before the growers of London to the best of my ability but they would not agree to it. But there were a few in favor of it. The only thing we can do is to keep on agitating and educating the members until we get there. It would be folly to try to push it in any direction at the present time here in Ottawa, Toronto, or London, because the sentiment of the growers is against it. There is no use in trying to foist it on to hostile people.

R. J. Bushell: A few years ago I suggested sending a monthly crop report to the branches. I wanted a car of carrots and White and Company were the only people who could tell me where to get it. Now, those circumstances should not exist among vegetable growers, if we had bulletins from one branch to the other, one branch could relieve the other of their overplus.

A DELEGATE: You can buy potatoes at $1.10 a bag to-day in Toronto, and they are $1.50 a bushel in St. Catharines.

J. LOCKIE WILSON: We have in Toronto rather a peculiar situation. It was a surprise to me when I heard Mr. Reeves say there were 1,000 vegetable growers within a radius of ten miles of Toronto. What is the use of sending men around and telling the other fellow how to do it if our own men are not co-operating, are not willing to co-operate. They can come back on Mr. Hart and say: Why are the men in Toronto not co-operating. To-day we have 38 members in the Vegetable Growers' Association in the Toronto Branch. There is something wrong. either with the organization or with the gardeners. For the last five years there has been a gradual diminution in the number of members until now we have only some 38 or 40 members in this whole branch of Toronto. If co-operation is good and right for others. surely it would be all right for us.

W. J. COOKE: Co-operation is the offspring of necessity. I have a well in my yard at home. and it is the only one in the district and all my neighbors in the locality use that well. Now. they might desire to co-operate to carry the water to the individual houses. That would not be of much advantage to me. With the 1,000 growers around Toronto, you are starting at the wrong place. I presume those 1,000 think they can handle their product very successfully. meeting their customers face to face. But it is the man in the outlying districts whose product must leave his hands and go into the hands of commission men and other salesmen, like men in the potato district around Zephyr—all their potatoes are shipped to Toronto and someone else sells them. In Dufferin co-operation is a very live subject and in Erie the same. and in fact, in every district where a lot of product is grown which must be shipped and leave the growers' hands. then a co-operative shipping organization is a very live question; while the man who can sell direct to the consumer or the wholesaler and drive his own bargain. is not so vitally interested. I don't see why the 1.000 growers in Toronto should be a stumbling block to all of the outlying district men who cannot possibly market their product to advantage without co-operative associations. But I think to start it with the 1.000 men in Toronto who can market their goods. is not wise.

J. LOCKIE WILSON: I could have taken you out eighteen miles from Toronto last fall and shown you thousands of bushels of tomatoes which were rotting which might have been sold in Northern Ontario. the West or down in Glengarry. And. after all. are the Toronto growers all satisfied with the prices they are getting and the way things are. I did not know that they are. If they are satisfied. they are the only people who are.

MR. JOHNSTON: When tomatoes get very plentiful in the summer. there is generally a glut on the market. and to my mind to solve this whole question we will have to have not only co-operation in marketing but also co-operation in handling. This canning question which was brought before us to-day if worked with these two questions hand in hand. I think will solve the whole problem. I live near Peterboro. and I am very much of the same opinion as the men from Toronto and Ottawa and others who spoke here to-night. We each one sell our stock individually. Sometimes we get high prices and again it is a glut on the market. If we had co-operative selling along with co-operative canning. then I think you would solve the whole problem.

A DELEGATE: What would the Toronto people do if the outside growers organized and sent everything into Toronto for two weeks, just to show them what they could do?

F. C. HART: You will remember I spoke to you last year on this subject at your Convention in Ottawa. I don't know that I have anything to add to what I then said, and after the address you have heard to-night from Mr. Rowley, perhaps nothing more of a fundamental nature can be said. It has been intimated by one of the speakers that co-operation is not brought into effect except under absolute necessity. This idea has been brought forward a good many times, and people with that viewpoint will instance the big co-operative organizations the world over which have been founded under absolute necessity. They will instance the down-trodden farmers of Denmark and Germany. Their co-operatives were founded to overcome the iniquitous usury system of the Jews. So we might go on through the history of co-operation, and it would almost seem that a co-operative undertaking is only successful under absolute necessity.

But when we come to our own country, the situation changes somewhat. The thought strikes me that we have in this country a citizenship that is much more intelligent and competent, and to make a co-operative organization highly successful it does not need those conditions of which I have spoken. We have in this Province illustrations of successful co-operatives in spite of the fact that these conditions of abject poverty and dissatisfaction were not present. And we have an illustration here to-night—I do not know of a district richer than that of Leamington, and we have there one of the outstanding successful co-operative organizations, an organization which markets somewhere near half a million dollars of perishable goods a year at a net cost of $1,553, and it was not founded upon abject poverty, but upon the business sense of the people of that district. And I think if the vegetable growers would set their minds to it, they are intelligent and competent enough to meet the difficulties that now appear in the way of co-operation in connection with the marketing of vegetable crops.

And in regard to the idea that Mr. Wilson brought forward, I disagree entirely with him that it is a function of Government to run your co-operative organization. The history of co-operative organizations the world over has been founded on the fact that they have been run and managed and controlled entirely by the people themselves, without any financial assistance from any Government in any shape or form. The Government can give assistance in the way of advice and help in gathering the experience of one and giving it to the other, but in every co-operative organization that has depended upon Governments for financial assistance, the co-operators have depended upon that instead of upon themselves, with the result that the organization has finally failed. Self-help is the basic rock upon which is founded success in these co-operative organizations. If the growers around Toronto are not able to see the business benefits to themselves, and are unwilling to stand the little frictions that will necessarily occur in the co-operative marketing of their vegetable crops in the district, then they are not ready for co-operation, and no Government or Government official should endeavor to thrust it down their throats, because it will inevitably fail unless it is founded upon the basis of self-help.

What I would like to see is what I suggested at your Convention last year, and what Mr. Rowley has suggested again to-night. In my humble opinion possibly we are not ready for the big vegetable co-operative organization yet. These things must grow, as every live proposition does grow, from small to greater things.

What I would like to see is even a few vegetable growers, if it can be worked on a sound basis around Toronto, organize their own little co-operative organization. Let the Toronto organization grow just as Erie grew. The same around Kingston, and so on, and in canning districts. I was down near Brighton just a few days ago, where growers organized to handle their canning crop. If they organized like that all through the Province of Ontario, the time would come when everyone would realize the disadvantage of organizations going into one market against each other. When that condition is brought home to your local business organization you would inevitably come to the conclusion that the only solution of the difficulty was the co-ordination of your locals. But it appears to me that the first step is to go home and on a small scale see if you cannot work out that proposition in your own district. Then will come later on the time for the larger organization. From my reading of the history of the big co-operative organizations, that is the fundamental condition under which they were organized.

A large English co-operative institution started with twenty-eight men seventy-five years ago, working on the same basis as our successful co-operative associations are now working; then another little store opened up, another little store, and still another, until at the present time they have some thousands of them in England, and they have grown until they have formed a wholesale institution, and have rubber plantations, and scoured the tropics for their spices, etc. They have gone to our Canadian West and bought 10,000 acres to grow wheat for their mills in England. They are the largest milling concern in England. If that 10,000 acres works out all right, they will buy 1,000,000 acres to produce all their wheat.

The vegetable grower has lacked in marketing system. Last year, more than any other, was this the case, and as long as that condition obtains we will have instances of not knowing where to find half a carload of carrots. We have got to realize that in order to make the marketing efficient we must have the middle man, but he should be under our own control. The first middle man is the local buyer from the producer. It is up to each one of you in your own sections to see which is the best way of organizing. I do not attempt to solve the problem here to-night for any locality, but if a request comes from any district in the Province we will be only too glad to go over the ground and offer any help or advice or assistance that we can. But it is up to you to look into conditions of your own neighborhood.

I hope it does not get into your minds that co-operative marketing is the panacea for all evils. There will be conditions of the trade and of the market when co-operation is of little help. In spite of absolute co-operation in raisin growing in California they could not sell their product at a profit this year, because the crop from Italy could be brought in cheaper. In the last analysis of trade conditions it is the supply and demand principle which rules. But with a marketing organization you can have the machine by which you do your own interpreting of supply and demand, and in my estimation that is the way for the vegetable growers as well as for all other growers in the Province of Ontario, that is the only way you can do your own interpreting of the market supply and demand.

C. F. KITNEY: I feel as if we should have what we may call a pow wow now, and I want to serve notice to the effect that we are going to take a step forward and we are going to do it under the direction of Mr. Hart and Mr. Wilson, and we are going to have suggestions from them, and I think we would like to hear what the rest of the Committee have to say. But as far as I am concerned, I am prepared to go and do it.

THOS. DELWORTH: The only reason I see for appointing this Committee is to form a policy—and I wonder whether a small committee such as you have appointed can sift the evidence with regard to the matter and frame a policy better than can be done here by this large Convention. If so, that Committee can get the report and submit it to you.

I am not so well acquainted with the growers in the other districts, but I presume the same conditions that prevail around Toronto will prevail with the grower around the other cities, and I fail to see how any co-operative selling organization could appeal to me. I know my own business conditions better than I know any other, and I can't see how any co-operative selling arrangement could be of any assistance to me. I have built up my own selling organization, and I think I can handle that now to better advantage than anyone else.

F. HART: Is that true of the majority of growers around Toronto?

Vegetable Exhibit at Teeswater.

THOS. DELWORTH: It applies to a large number. I admit: first, that a better price and a better market could be obtained for a great deal of our goods if they were handled by one person instead of 1,000. I admit that but I don't see that it is practicable to institute a measure of that kind in Toronto. While it would put up the price of goods when they were sold it would certainly add to the cost to the consumer. My truck starts from my place, and within two miles we begin to unload. What advantage would it be to the consumer if that truck delivered the whole of its load at one point, and then it had to be re-delivered afterwards? Then, further, I think there is a good deal in the personality behind your business. I may be conceited, I may have a swelled head, but I claim that I take a pride in my business and my personality is behind every bunch of lettuce that goes out of my place. A lot of other gardeners are doing business in the same way, others are doing business in a different way, and I don't propose to be punished for the misdeeds of others. You lose your personality when you go into co-operative marketing. There are lots of districts where that does not apply as much as it does in Toronto. Where a large number of men in a district are shipping similar goods they can do very much better by shipping to one point and through one person. But I have heard nothing here to-night which will apply to our City of Toronto, and I don't think it will apply to other large centres. However, I am open to conviction.

P. MAY (Tecumseh): It is a well known fact that the man who can truck his own goods to a city can do it better than a man who has to ship it in. The men in the back concessions, who are miles away, cannot possibly do that. In those sections co-operation would be of great benefit, and if co-operative societies were established in the rural districts these men would also have customers in the city. Therefore by co-operating I believe we would all be benefited.

R. J. BUSHELL: Provided you can find your way clear to work on a co-operative basis, just bear in mind the monthly report that I suggested from branch to branch. Another thing I would like you to remember too—that canning apparatus which I submitted to you to-day. I am very much interested in the vegetable growers of this country.

J. LOCKIE WILSON: To show the faith I have in this Committee, there will be no charge to the vegetable growers for the expense of this Committee meeting at any time you decide to call up. Mr. Thos. Delworth (I have seen his farm, and I have seen his methods) is a man who stands out conspicuously as one who is entirely different from the great majority of the rest of us, as he knows his business, and is in a different position from 99 per cent. of the vegetable growers of this Province. If the Committee decide to go ahead I would be very glad to have them meet in my office at any time.

THE FUTURE OF MARKET GARDENING.

THOS. DELWORTH, WESTON.

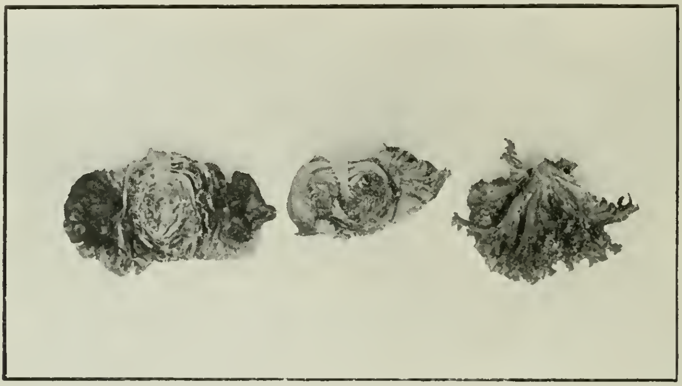
I have been invited to speak to you this evening on the Future of Market Gardening, and while not claiming at all to have the gift of prophecy, we might look into the thing for a few minutes and try and judge from our experience of the past and conditions of the present, what future we think lies before the market gardeners of this Province.

The business of market gardening is to grow vegetables for the market. We might go further and say that the first or primary business of the market garden is to provide a livelihood for those engaged in the work, and secondly to provide a supply of vegetables for consumers who are not growers. Whether you are a gardener or not will make a difference in the way those subjects should be put. I have put them according to my sentiments. The business of market gardening firstly is to provide a livelihood for those engaged in the work, and that market garden is best fulfilling its functions that supplies a supply of good vegetables for the consumer and at the same time renders to the gardener the highest rewards for his labor.

We will lay that down as an ideal, and consider how that ideal may be attained, and how we have so far attained it. I propose to deal with some problems affecting market gardeners, how they have to be met and how we have been meeting them in the past. The greatest problem the market gardener has to face at present is building up and maintaining the fertility of his soil. Peter Henderson, the famous market gardener of some fifty years ago, once stated that a plentiful supply of manure was the corner stone of successful market gardening, and I think that figure of speech could be used to-day with equal truth, as building up and maintaining the fertility of the soil is one of our most serious problems, and as you are aware, we must not only supply fertility but humus as well.

Many of us are working land worth from $500 to $1,000 per acre and equipped and improved, it is representing a capitalization of at least double that. Can we afford to devote any part of our short season to growing soiling crops for obtaining humus?

Now, taking the high price of our land, the matter of fertility, the cost of it, what is likely to be the result of that condition? Will market gardeners be forced to locate farther from the cities on cheaper land aided in that perhaps by a good road system and installing trucks, and so by rotation of crops on larger and cheaper acreages supply the needed humus and fertility by green crops?



Three types of Lettuce. The one on the right is Leaf Lettuce; the other two are cross sections of Head Lettuce.

A large part of the supply of animal manure for Central Ontario comes from the stock yards of Western Ontario. Most of the growers find they like to apply at least forty tons of manure to the acre when it is available. Do you think that is excessive?

W. J. Cooke: Just about right.

Another Member: Fifty would be better.

T. M. Mulligan: Fifty is a good medium, but it is costly to get it.

Thos. Delworth: Since the first of September we have had hauled down to our place a little over 800 tons. We are not through yet. Now, that is hauled and spread on to my land at a cost to me of $1.65 a ton. At Clarkson about ten or twelve miles west of me, I understand that is selling on the car to-day at $2.90 a ton. Now, of this $1.65 a ton, about two-thirds represents labor. The rest is the cost of the manure at my source of supply. Now, the Clarkson growers and others similarly located pay $2.90 for it on the car. They then have about the same expense as I have to unload that car and spread the manure on the ground, representing at least $1 a ton more when it is spread on the ground, or $3.90 a ton. The difference per ton of that manure delivered at Clarkson and where I am will represent $2.25 per ton, or a total of $1,800. Eighteen hundred dollars at six per cent. represent a capitalization of $30,000. What advantage would it be for me to go fifteen miles farther out if I got the land for nothing and a bonus for going.

Leaving that question of fertility, that is one of the biggest items of expense, building up and maintaining our soil fertility, and I don't see any way out at present on high priced land but to use manure, and I understand that the growers at Clarkson are taking all they can get at $2.90 a ton. What is your freight to St. Catharines now?

A MEMBER: A dollar sixty-five.

THOS. DELWORTH: That would add at least $1.05 to the Clarkson manure price for you. Now, taking the Clarkson proposition—you might say: Manure is too high, they will use other ways of getting fertility, green crops, etc., but my answer to that is that even with that high price the Clarkson growers are taking all they can get and our manure merchants are stocked up with orders and are refusing them.

The next serious item of trouble we have to meet is that of labor. Now, that has very largely been overcome by gardening management. Try growing crops, marketing at different times, endeavor to supply steady, constant employment for the year round.

That brings us to the next point—that of machinery. I think we may look for very decided changes and improvements along this line. Most of us can remember when the potato digger was a joke and the planter an unheard of thing. Now, I suppose none of us would attempt to grow potatoes on a large scale without a planter, a sprayer and a digger. I am safe in saying that the older men here can remember vast improvements in potato machinery in, say, 25 years. Go back 25 years, and I think you will remember there was more money thrown away in potato diggers than any other machinery. I look for improvement along the line of other machinery, the same way as we have had it in potato machinery, and it is coming.

Take our onion machinery. The onion weeder is not very good yet. We will find that we will have to avail ourselves of all the machinery we can get. This question of machinery and labor is very closely inter-allied. I spoke a little while ago about trying to keep your men in constant employment. Take a green man in market gardening, and you find he is of very little use. I am satisfied for a time, as long as the man appears to be willing to learn, to teach him, and if you find after a while that he is not willing to adapt himself, then you must replace him. Having once trained a man don't lose him. Try to develop your business so that you can keep him going steady, and maintain your staff of labor. I thought that I could not afford to pay the existing high wages, and that I had to do with cheaper labor when I could get it. I found this was a great mistake. It will not do. Ours is a highly specialized business. Men have to be trained for it, and we have got to lay our work out so that we can keep them going.

The next problem that is confronting us is the problem of seed. Some years ago I was considered to be something of a seed enthusiast. But the members of the Ontario Vegetable Growers' Association can hold up their heads when the Association can succeed in getting amendments to a Dominion statute ahead of anything else; we have reason to be proud of that achievement. Our seed legislation in Canada is, I think, fully abreast and ahead of that in the United States, and that amendment to the Seed Act with regard to germination was obtained through representations made by this Association.

But what is the outstanding need with the intelligent vegetable grower to-day in the matter of seed? I take it to be purity of variety and type, and I do not expect that we will get relief or very much assistance along that line from legislation. But it is better to-day than in years gone by, and there is a gradual improvement, but I think it will come about a good deal by co-operation between seed growers and vegetable growers. We have to recognize this fact—that no grower can sell the high quality seed that we demand at standard prices or under contract where he has to contract against anybody who is selling *any* seeds as long as they are onion or cabbage seeds. Now, the trouble is to find seed such as vegetable growers of intelligence demand. It is a regrettable fact that they are not always obtainable, even at any price you care to offer. I am not offering any way out of that—I believe seeds are getting better, but I think we should get after our seeds on purity of type, purity of variety. How much would it mean to us if every cabbage in the lot was as good as 25 per cent. of it. Don't quibble on the price of seed as long as it is what you want. In cauliflower seed I grew last year I had a great many varieties, one variety was so much better than the others that I went back to the seedsman and told him that I wanted him to assure me that I will get the same kind. I will not kick at the price. Now, if I was looking for cheap seed it would have been a different matter. That seedsman knows that as long as I get the right seed I will not kick, because 50 per cent. or 100 per cent. added to the seed bill is a small thing to what I would suffer if my seed was not right.

The great cry to-day in all gardens is "Get the grower and the consumer together. Let the grower sell direct to the consumer." Is that correct? Before we answer that, I want to point out to you one or two things. Some of these people who are working and arguing along this line apparently do not see that by that system they are not cutting out the retailer at all but simply substituting one retailer for another. In one case you have a man who is a vegetable grower by profession forced to become a retail merchant by occupation as against another who is a retail merchant by both trade, profession and occupation. Which is likely to be the most efficient and economical?

To elaborate that, suppose Mr. Davis' rig goes in to-morrow with a lot of lettuce. What difference does it make whether he takes time to retail that load or whether somebody else who has equipment for doing that retailing much better than Mr. Davis, does it? Which one can do it the cheapest? This is a day of specialization of experts, of men trained in their work for keen competition. To illustrate again. We will say that Tom Jones grows lettuce. His soil is admirably suited to the growing of lettuce. He grows an excellent article. His neighbor, John Smith, grows celery. He may be located some distance away. He can grow celery far better than Brown or Jones can grow. Are you going to force these men to grow crops that their soil is not suited for, that they themselves are not expert in handling, in order to have 57 varieties of vegetables on their wagons. This man is an expert vegetable grower, and bear in mind that it takes a very different type of man with different training to produce a first class vegetable grower or a first class salesman. We have seen men trying to market a crop, who, while excellent growers, made a botch of selling their goods. What difference does it make to the public, whether I leave the work that I am competent to do and act as retailer for the disposal of my goods? I have to charge the cost of retailing, that work has to be borne by somebody, and in the final analysis by the ultimate consumer, because we can't go on producing crops at a loss. How much cheaper is it to the general public or to us to do work for which we are not equipped, that we have to neglect our other business to do as we have to do if we have to undertake the work of retailing as well as the work of growing. The grocer can sell a bunch of lettuce much cheaper to the consumer than I can. If we want economic production, we must have specializing and the man must learn what crops he can produce better than his neighbors. Some people think, perhaps, that is individualism; it is not. My neighbor then must learn what crops he can produce better than I. Some of my neighbors can grow certain crops better than I can, but I don't grow those crops. I let him grow them. You have not got to grow every seed that the seedsman catalogues. Why do you not pick on a few crops that you know there is a call for and you find that you are successful in producing? You will get your name behind your stuff then and you will get a better price than the other fellow who comes along with it.

In conclusion, I believe the future of our business is very largely in our own hands, the demand for vegetables of good quality is likely to increase. Our products are sold almost exclusively to our city and town dwellers. Consider how much you sell outside of the cities and towns in Ontario? I think I am safe in saying that 95 per cent. of the fresh vegetables that are put on the market are sold in our cities and towns.

I am now dealing with facts as I find them when I tell you by consulting the figures of the census of 1881, the population of the five largest cities of Ontario was at that time 183,619, just about one-third the present population of Greater Toronto, and other cities, some in greater or less proportion. What does that mean to our business? It simply means increased opportunity. Another point in my own experience—I don't know how it bears out with you—I believe as the city increases in size, as a town increases in size, the demand for our product increases faster than the population. I argue that out in this way—that as the centres become more thickly populated, there are not as many back-yard gardens, and the demand becomes greater so that our business is likely to increase in demand, the demand for our products is likely to increase. But I want to emphasize one or two things, and that is, we must specialize, we must become expert, we must grow those things that we can produce as near perfection as possible; we must stand behind our product every time, so that when our customer or retailer buys a box of lettuce or a barrel of cabbage, they know it is going to be right.

Another matter in marketing: Is it or is it not good policy to market culls? I answer that in this way: It depends somewhat on what you class as a cull. It is never good policy to market a product that customers will be disappointed in, and will not find what they expected it to be.

Unfortunately, some of the growers did not discard their frozen cabbage this year, and if you go into the stores of Toronto you will find that in a great many cases cabbage this year is not good. Cabbage should always be good when they are marketed. If they are not good, do not put them on the market, take your first loss. There are lots of things that we class as seconds, small potatoes for instance; you sell them as small potatoes, lots of customers would as soon have them, some prefer them; but don't try to cover up the defect in your goods if there is a defect. If you take your loss at once, you will not have to take it again.

FERTILIZERS AND FERTILITY.

HENRY G. BELL, TORONTO.

The members of this organization of vegetable growers are faced with two great problems at this time: (1) the upkeep of humus, (2) the maintenance and increase of plant food in garden soils.

Upon these two important factors depend to a very large extent the quantity and quality of products to be realized from your farms.

Previous speakers have dealt with the increasing scarcity of manure, which condition is bound to become more aggravated as time goes on, because of the increased demand for garden products, as our towns and cities grow, and because Canadian farmers are turning more and more to the gasoline engine as the motive power on the farm.

You are faced with a great dual problem. Can it be solved? I believe it can. Green manures and fertilizers are the solution.

It is a well known fact that well fertilized crops produce a much heavier root growth than do unfertilized. Nevertheless, in order to keep a heavy worked market garden soil in proper condition it is found necessary to add large quantities of organic or vegetable matter. Every practical gardener knows that this was one of the big reasons for putting on thirty or forty tons of manure to the acre. Now that manure is becoming so scarce and dear, many gardeners are turning to green crops.

Ontario vegetable growers are a little handicapped in growing green manure crops as compared with their fellow gardeners living a hundred or two hundred miles south, since some of the rapid growing legumes which make such excellent green manures in those sections, have not a sufficient growing season to develop to the stage where they will be of real value. However, there remain a number of crops which can be used to great advantage.

A successful New Jersey gardener writes on this subject:

> "Five years ago we found just what we were looking for in the hairy or winter vetch. This can be sowed from July to September, and will produce an immense mass of green material to turn under the following spring, besides keeping the ground covered during the winter.
>
> "The method which we have worked out, and which has proved all that could be desired, is to turn under our old strawberry bed and seed with cow peas and vetch at the rate of about one bushel of the cow peas and a peck to ten quarts of vetch per acre. The seed is covered with a disk harrow, and then gone over with a plank drag or roller to firm the soil; this is very important, as the vetch seed is slow to germinate, especially if the soil is loose and dry. This work is usually done about the first week in July, immediately after the strawberry crop has been harvested."

A New York fruit grower writes along this line as follows:

> "We have an acre of currants that we cultivate and keep as clean as possible until the crop is gathered about July 7. We then cultivate in a very light sowing of buckwheat. After the buckwheat ripens, our ground is completely covered with chickweed; it climbs a foot high up into the bushes, and gets to be a mat two to three inches deep. What nicer humus could one wish to have to plough under the following spring?
>
> "Our peach orchards are seeded to red clover during July, but what a mass of weeds springs up before fall! But they all go down under heavy snow and help the clover during the cold winter months, making a heavy layer of both weeds and clover to plough under in the spring.
>
> "At the last cultivation of our sweet corn, we sow a liberal amount of both red and alsike clover, and get a very heavy stand. We mow it for hay in June and plough

the second crop under in the fall for the next year's crop of potatoes. In fact, we sow clover in every crop we grow where the ground is not going to be disturbed after July 15.

"The first opportunity we have after digging potatoes, we sow about a bushel of rye to the acre, and disk it over a few times, and always get a fine stand of rye to turn under the following spring.

"On pea and early cabbage ground we find a very profitable method is to sow during July one-half bushel of buckwheat and the same amount of rye. The buckwheat makes a fine crop to gather in September, if it doesn't fall down too much, and the rye is there for next spring's turning."

It is clear then that the humus question can be taken care of by the growing of green manures, but what about the plant food problem?

Here is where fertilizers play their big part. Fertilizers, as you know, are carriers of highly concentrated available plant food, in fact, one ton of 4-8-4 contains as much nitrogen and potash as 8 to 10 tons of stock manure and as much phosphoric acid as 20 to 30 tons of manure. Fertilizers, however, do not carry any large quantity of humus in their composition. As already pointed out they do invigorate root growth, and hence increase the humus content of the soil.

You are all familiar with the three important plant foods carried by fertilizers, viz., nitrogen, the plant stalk grower; phosphoric acid, the root invigorator and crop ripener, and potash, the plant strengthener and starch former. These plant foods are carried in soluble forms in fertilizers.

NITROGEN. The carriers of nitrogen may be classified under the headings, quickly available and gradually available.

(1) *Quickly Available.* A form of quickly available nitrogen that most of you are familiar with is nitrate of soda, a salt which comes from South America. This salt dissolves very readily, hence, if the nitrogen in a fertilizer is largely from nitrate of soda it will be best adapted to crops which have already made solid root and are in shape to make rapid growth. Such a form of nitrogen would be especially adapted to such crops as lettuce, radishes or other early and rapid-growing vegetable crops. Nitrate of soda contains about fifteen pounds of pure nitrogen to the one hundred pounds of salt. A more slowly available form of nitrogen is found in sulphate of ammonia. This is a by-product of the coking industry. Sulphate of ammonia is therefore better adapted than nitrate of soda for crops requiring a continuous supply of nitrogen. Another thing to keep in mind with sulphate of ammonia is the fact of its being an acid salt, which, when dissolved, immediately attacks the lime of the soil. If the lime supply is kept up, long-time tests show that sulphate of ammonia can be used with exceedingly good effect. Sulphate of ammonia carries about fifteen to eighteen pounds of nitrogen to the one hundred pounds.

(2) *Gradually Available.* The next carriers of nitrogen are blood and tankage. Analysis shows these carriers to contain nitrogen closely approximating in nature to the nitrogen of manure. A considerable portion of it is readily available and the remainder becomes available as bacterial activity increases in the soil. Fertilizers for gardens usually contain a considerable portion of nitrogen in this form so as to supply a continuous quantity of plant food as vegetables and other garden crops require it. Blood contains from fourteen to sixteen per cent. nitrogen while tankage may carry as high as six to eight per cent.

Another carrier of nitrogen which has come on the market within the last few years in cyanamid, which is a manufactured material composed of calcium of lime, carbon of the air and nitrogen of the air. This material has not come into very extensive use in Canadian fertilizers as yet, but as time proceeds it will undoubtedly become an important source of the food that causes plant growth.

PHOSPHORIC ACID. There are three main carriers of phosphoric acid. The first and oldest in point of use, is bone. For over one hundred years gardeners and farmers in general have found it highly beneficial to their crops to apply ground bone.

Raw bone meal carries from three to four per cent. nitrogen and from twenty-one to twenty-five per cent. total phosphoric acid. Steam bone meal carries from twenty-three to twenty-five per cent. available phosphoric acid.

Early in the 19th century chemists found that by grinding and treating bone they could render it more soluble. This discovery marked the beginning of the fertilizer industry. But the supply of bone was limited, hence the industry had to turn to other carriers of phosphoric acid. These it found in the natural phosphate rocks of Florida and Tennessee where rocks of quite similar composition to bone were discovered. The phosphate rock is ground and treated with acid, when it forms a soluble form of phosphoric acid known in America as acid phosphate and in Europe as superphosphate. This is not an acid salt as the name may imply, but is neutral in its reaction. In fact, it has been found through long-time experience that the use of fertilizers carrying a large amount of acid phosphate has not rendered the soil sour, but on the other hand has done considerable to maintain soil sweetness. Acid phosphate carries from twelve to sixteen per cent. available phosphoric acid.

Besides bone meal and acid phosphate there is a third form of phosphoric acid being put on the market known as basic slag. This material is the by-product of the steel industry: being the waste material from the Bessemer smelters. Basic slag contains varying amounts of slowly soluble phosphoric acid which seems to give its best results when used on meadows. As a rule, it is not looked upon as being of sufficiently high grade to supply phosphoric acid for garden truck.

As to the rapidity with which the carriers of phosphoric acid dissolve, acid phosphate is most soluble, bone meal is next, basic slag is very slowly soluble. The natural ground phosphate rock is almost insoluble.

POTASH. The carriers of potash consist of: (1) chloride or muriate of potash, (2) sulphate of potash, (3) carbonate of potash. All of these forms in their purest state are quite soluble in water. The higher grades of potash carry from forty-five to fifty per cent. potash.

THE MAKING OF FERTILIZERS. In the making of fertilizers the fertilizer industry assembles these raw materials from various parts of the world, analyzes them carefully and combines them according to certain formulae to constitute what are generally known as brands. These brands are made up with special points in view. For instance, the composition or the necessary balance of plant food to meet the special needs of the crop is the basic thought on which a brand is built. For such crops as beans, peas, sweet corn and the like, where a rapid development of the kernel is desired, fertilizers high in phosphoric acid are prepared, carrying at the same time enough available nitrogen to give the crops a good start and enough potash to assist in the strengthening of the crop and the filling of the grain.

For root crops, on the other hand, such analyses as 4-8-4, 3-6-5 and the like are prepared so as to supply a larger amount of the plant-grower, relatively not so much of the plant ripener, but considerable more potash, as vegetable crops contain more starch, and hence require more potash in their ration.

For still a third kind of crop such as lettuce, which makes most rapid leaf growth, fertilizers high in nitrogen are highly beneficial.

There is still another principle which the fertilizer manufacturer has in mind in the making of brands, and that is the adaptiblity of the fertilizer to the type of soil on which it is to be used. For instance, on a sandy soil, larger quantities of higher grade plant food are required than on clay, since sandy soil is potentially weaker in plant food than is clay. Many gardeners are working soils very rich in humus almost approaching a muck type. Such soils are fairly well supplied with nitrogen, weak in phosphoric acid and exceedingly weak in potash, hence the necessity of balancing a plant food which will emphasize the constituent in which the soil is weak.

Before an audience such as this, where long-time and extensive practice has made you expert in the handling of your crops, I hesitate to make definite recommendations, but it might be helpful to some who are using fertilizers for the first time, if I should indicate typical analyses which have been found to give highly beneficial results in truck gardening. I do not know that I could mention a brand which has given uniformly better results than 4-8-4 on garden vegetables. As to quantities which gardeners have found beneficial, I might say that they range all the way from 500 to 1,000 pounds per acre. On potash-loving crops such as potatoes, carrots, beets, etc., fertilizers analyzing 4-6-10 and 5-8-7 have given highly profitable results.

Since tomatoes are becoming such an important crop in many truck gardening sections of the Province, I am going to take the liberty of quoting an experiment which has just been reported from Purdue Agricultural Experiment Station, Lafayette, Indiana:

> "Tomato fertilizer experiments were broadened to include other plant food elements than acid phosphate, following the results of the 1918 experiments, which clearly indicate the need of other plant foods. The results of the 1919 tests indicate that acid phosphate, supplemented with common nitrogen and potassium, gave more profitable yields than acid phosphate alone. Of some fifteen different combinations of fertilizers, 500 pounds of 2-12-6 gave the highest net profit. Six hundred pounds of acid phosphate per acre alone yielded a net profit of $24.54 per acre, while a fertilizer of the above formula gave a net profit of $44.45 per acre. Check plots in this experiment showed a net loss in every instance. This loss was as high as $10.68 per acre."

An exceedingly important point in the profitable use of fertilizers is the *application* of this plant food. Being carriers of soluble plant food, it is obviously necessary that fertilizers be worked into the damp soil where there is moisture to dissolve them. Some gardeners claim a material advantage by applying a large proportion of their fertilizers at least two weeks before seeds are sown or plants are set out. They claim that by this practice the soluble plant food has time to dissolve and disseminate through the soil so that sprouting seeds and growing plants can immediately lay hold of the plant food and benefit thereby. This is especially true of bone meal, which must await rapid bacterial action before it can render its full benefit. Some gardeners are also finding it highly profitable to side-dress their crops with fertilizer just before cultivation. The addition of plant food at such a time is like giving an extra meal to the growing animal.

In conclusion, I wish to impress the dual nature of the fertility problem. Manure, of which, in times past, there has been a large supply, has carried a rich supply of valuable humus and a comparatively large supply of nitrogen and potash. Manure has always been weak in the plant ripener. Nevertheless, every practical gardener knows that manure is exceedingly valuable as a source of plant food for gardens. I do not wish to be understood as recommending fertilizers to take the place of manure, but I do desire to leave with you the thought of supplementing the decreasing supply of manure on the farm with a liberal supply of well-chosen, high-grade fertilizers. At the same time the next great source of humus for the soil is cover-crops, or crops grown primarily for green manure.

Mr. Wilson announced that it had been decided that Mr. Delworth was to be Chairman of the Committee appointed on Co-operation.

The Convention then adjourned after singing The National Anthem.

JUDGING VEGETABLES.

A. H. MacLennan.

(Reprinted from Bulletin No. 270. Illustrated.)

Standards for Judging Vegetables.

For some time it has been felt that a more definite idea of the type of each vegetable should be published in order that judges may be enabled the more easily to give their decision.

Uniformity of exhibit is necessary always. Each specimen exhibited should be similar in size and shape, and smooth. Too many exhibitors fail owing to lack of uniformity in their entry.

The size certain vegetables should be, to obtain first place, has been a much debated point. Many individuals give preference to size rather than quality. As this latter is somewhat difficult to explain it may be stated as what a good cook chooses when she selects the vegetables for table use. Medium size in most cases indicates this.

Each specimen should be fresh, firm, free from blemish and correctly named; nothing soft, spongy or decayed should be entered or considered for a prize.

Weight must be considered in judging cabbage, melons, squash, pumpkins, onions, egg plant and citrons. While coarseness is always to be avoided, the heavier specimens should be awarded the prize.

Asparagus.—Shoots should be thick, of medium length (6 to 8 inches) and uniform in thickness, tender, and free from rust and insect injury. Should show no signs of branching and no more than 1½ inches of white at bottom. Bundles from half lb. to 2 lbs. in weight.

Beans.—*Broad Beans*: Straight, broad, well-formed pods filled with large tender beans. Free from disease.

String Beans: Pods should be long, straight, moderately broad, fresh, brittle, uniform and free from disease. Seeds well developed but tender. Colour according to variety.

Beets.—*Long*: Not more than 2½ inches in diameter, smooth and free from side roots, straight, gradually tapering from crown to tip, firm, free from cracking or signs of disease. Top small and compact. Roots uniform; showing little of scaling or sunburn, colour judged by outer indication and by slight abrasion on side.

Turnip: Not over 3 inches in diameter, firm, with smooth round shape and fine terminal root; no side roots. As dark red a colour as possible to variety. Roots uniform, typical of variety and showing as little scaling or sunburn as possible. Free from cracks or signs of disease.

BRUSSELS SPROUTS.—Stems straight; densely covered with medium-sized, firm sprouts.

CABBAGE.—*Early*: Generally round or pointed, typical of variety if named, should be of medium size, 4-6 lbs. in weight, fresh, hard and free from insect injury or disease.

Later: Heads round or flat with two layers of green outer leaves. Specimens should be fresh, uniform, hard but not excessive in size. Free from disease or insect injury.

Red: Slightly conical or round in shape. Dark red colour, solid, heavy.

Savoy: Round or flattened, firm and heavy. Dark green colour with close curl in leaf.

CARROTS.—Roots should be long, straight and smooth; showing no green at the crown, free from side roots, and gradually tapering from crown to tip. Core small with a large outer ring. Roots uniform in size and shape. Free from disease, discolouration or cracks.

Medium: Medium in length and size, straight, free from side roots and without green top or split roots, gradually tapering or blunt tip according to variety. Skin smooth, colour clear and bright with a small core and large outer ring. Roots uniform in size and shape. Free from disease.

CAULIFLOWER.—*Head*: Large in size, of a well-formed curve, with a dense formation of flower, showing no tendency to open; pure white in colour and without small leaves in the head. Free from all blemishes. A few of the lower leaves attached. Specimens uniform.

CELERY:—Heads large, stems long, well-blanched except in winter varieties, firm, medium thickness, none hollow, free from rust and rot, showing no flower stems. Roots trimmed short or to pyramid shape. Heart large and carried well up. Ribs not prominent. Uniform in shape, true to type of variety.

CITRON.—Large, well-rounded, heavy specimens, finely mottled and well-coloured throughout. Must be firm and of good weight.

CUCUMBER.—*Indoor*: Should be of the length of the variety, smooth, uniform with size and shape well-carried out towards the ends. Dark green in colour: not large enough to show tendency toward too great seed development.

Outdoor: Specimens should be smooth in form, uniform, straight, not over 8 inches long and 1¾ inches diameter which is well-carried out towards the ends; of a dark green colour.

Pickling cucumbers must not be over 4½ inches in length and 1¼ inches in diameter, smooth, of even diameter from end to end. Gherkins not over 2½ inches long and ¾ inch in diameter.

EGG PLANT.—Colour should be dark purple all over, specimens even in size, large, smooth and solid. Free from any signs of decay.

GARDEN HERBS.—True to name, should be either green or well dried. Bunches medium in size.

KALE.—Specimens in pots generally, should have a close, even curl on all leaves. Size according to particular variety.

LETTUCE.—*Cabbage*: Heads should be large, well-rounded, firm, free from any blemishes. Fresh, no flower stems.

Cos: Conical in shape with straight, upright growing leaves, well-bleached and crisp, and with a firm heart. Fresh, no flower stems.

Leaf: Heads of crisp, well-crinkled leaves, showing medium green, without any blemish. No flower stems. Leaves forming dense mass.

MELONS.—*Musk*: Medium to large according to variety, firm, evenly ribbed and closely netted. When fit for use melon pulls easily from stem and flower end is somewhat soft and yielding to the finger. Readiness for eating is the first requirement. This is indicated largely by the smell. Closeness of the netting denotes the quality.

Water: Medium to large according to variety, firm, smooth. Melon must be tapped to get quality.

ONIONS.—*Large*: Shape, globe or flat and of colour of variety. Clean but not peeled, uniform, of good weight and have a small, well-ripened neck, firm, especially at the base of the neck. Showing no sections. Thorough ripening essential. Should be separate classes for seed, transplanted, and sets.

Pickling: Should range from ½ inch to ¾ inch in diameter, uniform in size and shape, clean, firm and white in colour. Thoroughly dried.

PARSELY.—Head, large and bushy with numerous finely curled, dark green leaves. Crisp and free from any discolouration.

PARSNIP.—Roots straight, of good length, broadly shouldered, not less than 3 inches, crown well hollowed, free from side roots, gradually tapering from crown to tip, clean, smooth and free from discolouration or disease, firm with a small core.

PEAS.—Pods long and straight, dark green in colour and well-filled with medium, sweet-flavoured, tender peas. Pods uniform in size and colour with no signs of ripening.

PEPPERS.—Either red or green. Should be smooth, firm and typical of variety. Free from disease and injury.

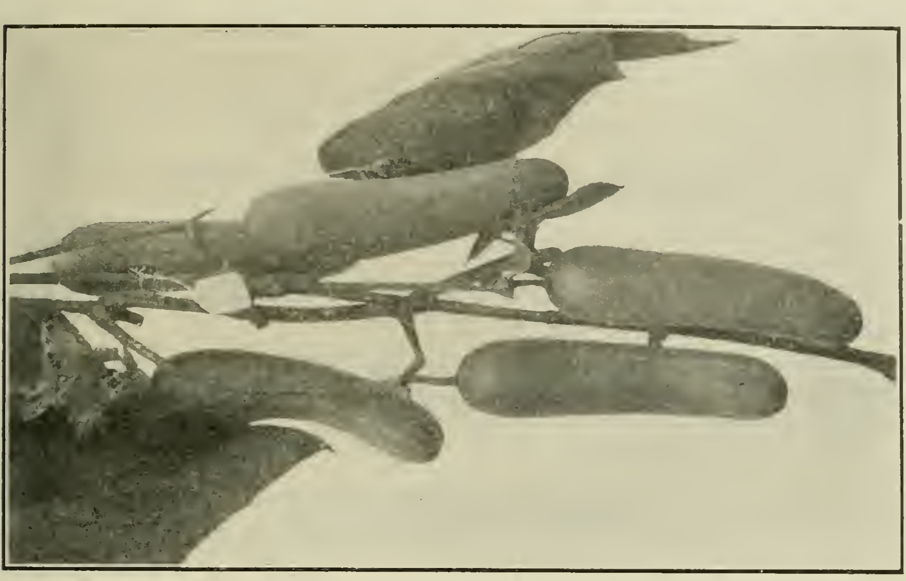
POTATOES.—Specimens uniform in size, 10 to 14 ozs. in weight, smooth, with eyes as shallow as possible for the variety, firm, white inside colour, clean and free from disease of any kind.

PUMPKINS.—Round or oblong in shape, symmetrical, medium size, thin-skinned, closely ribbed, firm, heavy; deep yellow or creamy yellow colour all over.

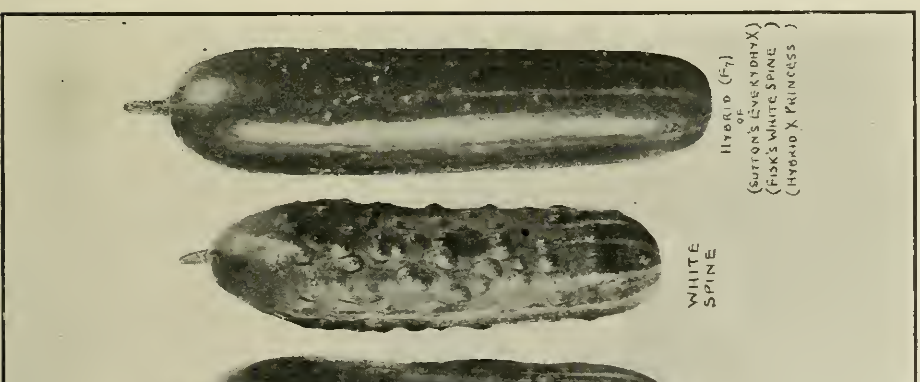
RADISH.—*Summer and Winter*: Medium size, according to variety; clean, smooth, even form: free from insect or disease injury, cracking and side roots: crisp, firm, not spongy, uniform in size, no stem, leaves close to fleshy root.

RHUBARB.—Stalks, medium in diameter, long, straight, fresh and tender. Well-coloured over all the stem.

SALSIFY.—From 1½ to 2 inches at top, smooth and straight, gradually tapering to tip, free from side roots, firm, fresh and clean, skin white in colour. Core small.



Greenhouse cucumber hybrid showing free setting habit and type fruit.



Parent types of greenhouse cucumber hybrid and selected type of hybrid on the right.

SPINACH.—Specimens should be large with close, heavy foliage; fresh and free from all coarse outer leaves; broad, dark green, tender leaves, typical of the variety, free from disease and insect injury.

SQUASH.—*Summer*: Medium size and weight, colour and shape of variety, firm but with rind soft enough to admit thumb nail readily.

Winter: Should be large, heavy and firm, of colour and shape according to variety. Hubbard should be heavily warted.

TOMATOES.—Medium in size, uniform with an even, well-rounded shape, smooth, skin even-coloured all over, firm, fresh, good weight and a small eye. Free from diseases or insect injury. Not over-ripe. Blossom end small, colour varies according to variety—pink, bright red, or yellow.

TURNIPS.—Medium size with smooth, symmetrical form, small tap root and free from side roots, firm and heavy. Small core, as free as possible from splitting or sunburn, showing no insect or disease injury. Colour varies from white to light yellow, according to variety.

VEGETABLE MARROW.—Medium size, oblong in form, smooth and even, with uniform thickness and good weight. Fresh, firm but with a rind soft enough to readily admit thumb nail. Colour varies from a cream yellow to a mottled green.

Ontario Department of Agriculture

Fifty-First Annual Report

OF THE

Entomological Society

OF ONTARIO

1920

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To His Honour, LIONEL H. CLARKE,
Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present herewith for your consideration, the Report of the Entomological Society for 1920.

Respectfully submitted,

MANNING W. DOHERTY,
Minister of Agriculture.

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Delegate to the Royal Society of Canada—The President.

FINANCIAL STATEMENT

For the Year Ending October 31st, 1920

Expenditures.		*Receipts.*	
Printing	$1,692 09	Cash on hand, 1919	$ 82 81
Annual Meeting	28 05	Subscriptions	475 86
Expense	19 00	Members' Dues	102 00
Cash in Bank	94 15	Advertisements	93 29
		Back Numbers	70 75
		Bank Interest	8 58
		Government Grant	1,000 00
	$1,833 29		$1,833 29

To balance due on printing	$467 51
To Editor's salary	100 00
To Annual Report	25 00
	$592 51
By cash in Bank	94 15
Net deficit	$498 86

Respectfully submitted, A. W. Baker. *Secretary-Treasurer.*

Auditors: L. Caesar.
J. E. Howitt.

Entomological Society of Ontario

ANNUAL MEETING

The Fifty-seventh Annual Meeting of the Entomological Society of Ontario was held at the Ontario Agricultural College, Guelph, on Wednesday and Thursday, November 17th and 18th, 1920. The daily meetings were held in the Entomological Lecture room of the College and the evening meeting in the men's sitting room. The following members were present: Dr. E. P. Felt, State Entomologist, Albany, N.Y.; Rev. Prof. C. J. S. Bethune, Prof. L. Caesar and Messrs. A. W. Baker and G. J. Spencer, O. A. College, Guelph; Messrs. Arthur Gibson, L. S. McLaine, H. G. Crawford and E. Hearle, Dominion Entomological Branch, Ottawa; Prof. W. Lochhead, Macdonald College, Que.; Father Leopold, La Trappe, Que.; Mr. F. J. A. Morris, Peterborough, Ont.; Prof. E. M. Walker, Toronto, Ont.; Mr. W. E. Biggar, Hamilton, Ont.; Mr. Jas. Dunlop, Woodstock, Ont.; Mr. E. R. Buckell, Dept. of Agriculture, Victoria, B.C.; and the following officers of the Dominion Entomological Branch: Messrs. C. E. Petch, Hemmingford, Que.; W. A. Ross, Vineland Station, Ont.; H. F. Hudson, Strathroy, Ont.; Norman Criddle, Treesbank, Man.; and E. H. Strickland, Lethbridge, Alta.

Among the visitors present were Prof. C. R. Crosby, Cornell University, Ithaca, N.Y.; Messrs, W. R. Walton and L. H. Worthley, Bureau of Entomology, Washington, D.C.; Mr. A. V. Mitchener, Manitoba Agricultural College, Winnipeg, Man.; Mr. A. H. McLennan, Dept. of Agriculture, Toronto; Mr. R. H. Gurst, Dominion Pathological Laboratory, St. Catherines, Ont.; and Professors R. Harcourt, J. E. Howitt, D. H. Jones and J. W. Crow, Dr. R. E. Stone, and Messrs. C. R. Klinck and W. G. Garlick, O. A. College, Guelph.

Letters of regret on their inability to attend the meeting were received from the following: Rev. Dr. T. W. Fyles, Mr. George Maheux, Prof. P. J. Parrott, Prof. O'Kane, Prof. Headlee, Prof. J. J. Davis, and Messrs. Moore, Winn and Corcoran of the Montreal Branch.

On Wednesday morning a meeting of the Council was held, at which the report of the proceedings of the Society for the year was read by the Secretary and approved and several important matters concerning the welfare of the Society discussed. A committee, consisting of the President and secretary of the Society and Dr. E. M. Walker was appointed to deal with the matter of adjusting the finances of the Society. It was also decided that the following policy with respect to the journal of the Society be followed in future as closely as possible, viz:—that no papers be published unless the author be a subscriber or member of the Society and that the author bear the full cost of all cuts. It was suggested that in view of the fact that the Annual Meeting of the American Association for the Advancement of Science is to be held in Toronto in 1921, that the Annual Meeting of the Entomological Society of Ontario be held in the same city at such a time that visiting entomologists could attend our sessions.

WEDNESDAY AFTERNOON

The regular meeting was called to order by the President, Mr. Arthur Gibson.

The various reports of the Society, except that of the treasurer, were taken as read. The financial statement was then read by the Secretary-Treasurer.

Professor Caesar spoke a few words of appreciation of Dr. Hewitt's work, and moved that a letter be sent to Mrs. Hewitt expressing great regret that Dr. Hewitt was not with us. This was seconded by Prof. Lochhead and carried.

The remainder of the afternoon was occupied by the reading of papers and discussion.

REPORT OF THE COUNCIL.

The Council of the Entomological Society of Ontario begs to present its report for the year 1919-20.

The fifty-sixth annual meeting of the Society was held at Ottawa on November the sixth and seventh, 1919. The attendance was good and very representative of the National character of the Society, members being present from Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba and British Columbia. In addition to the Canadian members there were two welcome visitors from the United States: Mr. C. L. Marlatt, Assistant Chief of the Bureau of Entomology, Washington, D.C., and Dr. Summers of Massachusetts.

The following papers were read:—"Insects of the season in Ontario," W. A. Ross and L. Caesar. "Insect Conditions in the Province of British Columbia," R. C. Treherne. "Results of some Preliminary Experiments with Chloropicrin," G. J. Spencer. "Ephydra hians and its Occurrence in Western Canada," Dr. C. Gordon Hewitt. "Our Common Cercopidae," George A. Moore. "Further Notes on the control of the Pear Psylla," W. A. Ross and W. Robinson. "My Experience this year in Dusting and Spraying," Rev. Father Leopold. "The Chief Factors in the Natural Control of Insects," J. D. Tothill. "The Present Condition of the Balsam and Spruce Injury in Quebec," J. M. Swaine. "Recent Observations on Eastern Ticks," S. Hawden. "How the United States is preventing the Introduction of Foreign Insect Pests and Plant Diseases," C. L. Marlatt. "Hopkins Bioclimatic Law," W. Lochhead. "On the Wings of the Wind," A. F. Winn. "Locusts in Manitoba with Special Reference to the Outbreak in 1919," Norman Criddle. "Ecological Notes on certain Species of Locusts prevalent in British Columbia," E. R. Buckell. "Symposium on the Cabbage Root Maggot and its Control in 1919," W. H. Brittain, R. C. Treherne, Arthur Gibson and L. Caesar. "Present Status of Pests of Canadian Flour Mills," E. H. Strickland. "Life-History of a hobby Horse—Part II—Boy and Man," F. J. A. Morris. "Some Notes on the Life History of our Common June Beetles," H. F. Hudson. "Further Notes on the Life History and Control of the Strawberry Root Weevil," W. Downes. "The Strawberry Weevil," W. A. Ross. "Borers in Corn and other Field and Garden Plants which have been or may be mistaken for the European Corn Borer," Arthur Gibson.

The Canadian Entomologist, the official organ of the Society completed its fifty-first volume in December last. The size of the magazine was enlarged in order to be uniform with the standard size of bulletins, and the number of pages in each issue was reduced but without making any diminution in the amount of reading matter published. The volume contained 287 pages, illustrated by 20 full page plates and 36 figures from original drawings. The contributors to its pages number 65, and include writers in Ontario, Quebec, Manitoba, Alberta and British Columbia, and also in twenty-one of the United States. Ten papers were published on "Popular and Practical Entomology," which continued to form an attractive and instructive feature for the benefit of the general reader.

Ten numbers of the 52nd volume have so far been issued and the volume will be completed by the publication of the November and December numbers.

It is again the sad duty of the Council to record the loss of one of our most eminent members, and it is difficult to express in suitable terms the profound regret that all Entomologists feel at the death of Dr. C. Gordon Hewitt, Dominion Entomologist and a former President of the Society. He died at Ottawa on February the 29th, 1920, of pneumonia, following a brief but very severe attack of influenza . By his death Canada has lost one of her ablest men of science and the Department of Agriculture a most valuable and efficient servant, through whose wide knowledge of economic zoology, great administrative ability and far-seeing judgment, the Dominion Entomological service has developed to a remarkable extent since his appointment as Dominion Entomologist in 1909. A full acount of his life and work, together with an excellent portrait, was published in the *Canadian Entomologist* for May.

REPORT OF THE LIBRARIAN.

No books have been purchased for the Library during the year ending October 31st, 1920, owing to the lack of funds for the purpose. Thirty-six bound volumes, nearly all of them the gift of the Librarian, have been added to the Society's collection making the total number 2,328. There is a large accumulation of periodicals, bulletins and other publications, many of which should be bound in order to be available for reference, but at present there is no prospect of any means being available, nor has it been possible to have them classified and catalogued.

Respectfully submitted,
Charles J. S. Bethune, *Librarian.*

REPORT OF THE MONTREAL BRANCH.

The 392nd regular and 47th Annual Meeting of the Montreal Branch was held on Saturday, May 8th, 1920, in the Lyman Entomological Room, Redpath Museum, McGill University.

The following reports were given:—

The Council reported that during the season 1919-20, eight meetings had been held with a total attendance of eighty-one or an average of ten per meeting. This was larger than for the previous season. The Annual Field Day was held at St. Hilaire on Victoria Day. During the year twenty-one papers were read on the following subjects:—

1. President's address	A. F. Winn.
2. Notonectidæ (Hemiptera)	Geo. A. Moore.
3. Collecting at Peaks Is. Me., 1919	A. F. Winn.
4. A trip to Tadousac, Que.	A. F. Winn.
5. The annual meeting at Ottawa	Geo. A. Moore.
6. Common characteristics of the Ephemeridæ	Dr. Corcoran.
7. The North America species of Coelambus	J. I. Beaune.
8. The House Centipede, Cermatia forceps Raf. in Montreal	Dr. A. Wiley.
9. Superstitions about insects	A. F. Winn.
10. Our common Cercopidæ	Geo. A. Moore.
11, Studies in Donacia	G. Chagnon.
12. North American species of Parnassius	A. F. Winn.
13. Dangerous Insects found in Montreal	J. I. Beaune.
14. New Year's Message	A. F. Winn.

15. Woodboring beetles found at Ft. Coulonge	J. I. Beaune.
16. Ocelli	Geo. A. Moore.
17. The preparation of Entomological material for the microscope	Dr. F. S. Jackson.
18. Studies in the genus Podisus (Hemiptera)	Geo. A. Moore.
19. Notes on a collection of Lepidoptera from Murray Bay, collected by Jas. G. Holmes	A. F. Winn.
20. Specific, subspecific and varietal categories	Geo. A. Moore.
21. Note on a species of Bot Fly, Bogeria grisea Coq. taken at Tadousac, Que.	A. F. Winn.

The Treasurer reported a balance on hand of $157.38.

The following were elected officers:—

President	A. F. Winn.
Vice-President	G. Chagnon.
Secretary-Treasurer	Geo. A. Moore.
Librarian	J. W. Buckle.
Council	Dr. Corcoran, G. H. Hall, A. C. Shepherd.

Geo. A. Moore, *Secretary.*

REPORT OF THE TORONTO BRANCH.

The 239th regular and 24th Annual Meeting of the Toronto Branch was held in the Biological Building of the University of Toronto on Thursday evening, October 21, 1920.

The report of the Council showed that during the season eight regular meetings and a field meeting were held, with an average attendance of twelve persons.

During the season the following papers and addresses were given before the Society:—

1. "Wohlfahrtia vigil as a Human Parasite"	Dr. E. M. Walker.
2. "Collecting at Port Sydney, in 1919"	N. K. Bigelow.
3. "Collecting at Go Home Bay, Ont."	H. V. Andrews.
4. "Habits of Our Commoner Dipterous Larvæ"	N. K. Bigelow.
5. Exhibit of the Entomological Collection of the Royal Ontario Museum of Zoölogy	S. Logier and N. K. Bigelow.
6. "Insects as Carriers of Disease"	H. V. Andrews.
7. "Mayflies"	Dr. W. A. Clemens.
8. "Grasshoppers and Locusts"	Dr. E. M. Walker.
9. "Ox-Bot Flies"	A. W. Baker.
10. "The Nesting Habits of Ants"	S. Logier.

Seven new members were elected during the year, i.e. Miss C. A. Brown, Miss Jean Scott, Miss M. Maitland, Mr. R. W. Hall, Mr. A. H. Leim, Mr H. Haworth and Mr. A. C. Auchinachie.

The Treasurer's Report showed a balance of $26.25.

The following officers were elected for the coming year:—

President	H. V. Andrews.
Vice-President	S. Logier.
Secretary-Treasurer	Norma Ford.
Librarian	N. K. Bigelow.
Council	Dr. E. M. Walker, Dr. A. Cosens, Dr. W. A. Clemens, and A. H. Leim.

Respectfully submitted,

Norma Ford, *Sec.-Treas.*

REPORT OF THE BRITISH COLUMBIA BRANCH.

The 19th Annual Meeting of the British Columbia Entomological Society was held in the I.O.D.E. rooms, No. 401 Jones Building, Victoria, on Saturday, Feb. 21st, 1920. Seventeen members were present and several visitors. The meeting was a most successful one and several important resolutions were passed. Chief among these was one moved by Mr. Treherne and seconded by Mr. Lyne in favour of co-ordinating entomological work throughout the Dominion and in favour of establishing national journals of entomology, one for systematic and one for economic entomology. The secretary was instructed to forward a copy of this resolution to the Ontario Entomological Society.

Other resolutions were passed as follows:—

"That the Dominion Government be asked to publish a handbook on the birds of Canada west of the Rocky Mountains."

"That the Secretary write to the Natural History Societies requesting co-operation in bringing the necessity for control of the Tent Caterpillar to the Civic and Municipal Authorities;"

"That prizes be given at the fall fairs for the best collection of insects by school children, at the discretion of the Advisory Board."

"That the subscriptions of members joining later than August be good for the following year."

"That arrangements be made with a dealer in the city of Victoria to act as agent for entomological supplies."

The following papers were read during the meeting :—

Common Dragonflies of B. C.	W. Downes.
A collecting trip to Lillooet	G. O. Day.
Further notes on Aeolothripidæ	R. C. Treherne.
Native flowers for bees	J. Davidson.
Some new species of Mycetophilidæ	R. S. Sherman.
Life history of Apateticus crocatus	W. Downes.
The Argynnids and Brenthids of B. C.	E. H. Blackmore.
Entomology in the Schools	J. W. Gibson.
Further notes on the control of the Onion Maggot	R. C. Treherne and M. H. Ruhmann.
Further notes on the Tent Caterpillar and its natural control	A. B. Baird.
A new honey-eating larva	J. W. Cockle.
The Locusts of B. C.	E. R. Buckle.

The following officers were elected:—

Hon. President	Francis Kermode.
President	E. H. Blackmore.
Vice-President (Coast)	R. S. Sherman.
Vice-President (Interior)	R. C. Treherne.
Advisory Board	Messrs. J. Davidson. J. W. Gibson, L. E. Breun, E. W. White, L. E. Marmont.

Alan G. Dustan, *Secretary.*

REPORT OF THE NOVA SCOTIA BRANCH.

The sixth meeting of the Entomological Society of Nova Scotia was held in the biology lecture room at Acadia University, Wolfville, N.S., on August 24th. In the absence of the President, Prof. W. H. Brittain, due to illness, the chair was taken by the Vice-president, Mr. J. D. Tothill. At the business meeting, which was held in the morning, it was decided to hold in future two meetings of the Society each year: a summer meeting, to take the form of a field day; and a winter meeting, at which papers and addresses would be presented. The following officers were elected for the ensuing year:

Honorary President ....Dr. A. H. MacKay, Halifax.
President............................Prof. W. H. Brittain, Truro.
Vice-President ....J. D. Tothill, Fredericton.
Secretary-Treasurer ....A. G. Dustan, Fredericton.
Committee ....Dr. Edna Mosher, L. G. Saunders, V .B. Durling.
Publications Committee ....W. H. Brittain, A. Kelsall, A. G. Dustan.

At the afternoon session addresses were given by Mr. Arthur Gibson, Dominion Entomologist, and Dr. A. H. MacKay, Superintendent of Education for Nova Scotia, and a number of papers were read by different members.

During the past year the fifth "Proceedings of the Entomological Society" was issued. This publication, which comprises ninety-four pages and includes four plates, contains some very valuable data on the various insects studied throughout the year. It also includes an account of the latest insecticide-fungicide combinations which have been tested in Nova Scotia during the past season.

Alan G. Dustan, *Secretary.*

REPORTS ON INSECTS OF THE YEAR.

Division No. 3. Toronto District—A. Cosens.

With reports from different parts of the province of serious damage done by the Hessian Fly, and from another part of the appearance of the Corn Borer, the Entomological happenings in the Toronto District seem very unimportant.

The Tussock moth, so much in evidence for several years, has apparently passed the peak of its development and will now decrease in numbers for a term of years. In the western part of the city few caterpillars were seen in districts where the trees have been badly infested for several years. The parasites are clearly establishing a control of the pest, but this natural check has been assisted by the system of spraying and intelligent collection of egg masses carried out by the City Parks' Department.

Two moths, noted as being unusually plentiful, were the day-flying, black and white Shearmark. *Rheumaptera hastata* and the Linden Moth, *Erannis tiliaria.* The latter was common, flitting about the electric street lamps, until the cold spell that commenced October 25th brought its activities to a close.

The Monarch butterfly was only rarely seen this season and specimens of the Common Sulphur were less numerous than usual.

Reports from the eastern part of the city indicate that the Soldier Bugs have been more than usually aggressive in their attacks on the Colorado Potato Beetle. These carnivorous insects kill the "Potato Bug" by thrusting their beaks into it, a mode of attack quite different to that of the beetles for which they are often mistaken.

There is a beetle, *Lebia grandis,* however, that kills large numbers of the Potato Beetles. It attacks both larvae and adults as well as feeding on the egg clusters of the pest. This insect friend of the gardener is easily recognized by its dark blue outer wings and red-coloured legs and body.

Other beneficial insects, frequently seen in this district, are the Ground Beetles. There are two common species of them, both of which are distinctly marked. The Searcher or Caterpillar Hunter, *Calosoma scrutator*, has its outer wings colored a vivid violet green, margined with reddish, while those of the Fiery Hunter, *Calosoma calidum,* are black, marked with regular rows of yellowish, punctated dots.

These species destroy a large number of destructive, leaf-eating insects, tent-caterpillars, cutworms, canker-worms and other equally injurious forms. Their segmented, flattened larvae burrow just beneath the surface of the ground and attack the insects entering the ground to complete their development. These larvae are very active and so well-armed with a sharp pair of jaws, that they are able to overcome larvæ much larger than themselves. The adult insects hunt at night, and like the larvae feed upon other insects. Because of this nocturnal habit and their hiding under stones and logs during the day, they are seen less frequently than some other insects that are not so plentiful. They are, however, found often in the mornings on the pavements under the electric lights that have attracted them during their night-marauding expeditions.

There have been very few acorns on the mossy-cup oaks, *Quercus macrocarpa,* in this locality for several years, but this season, on the contrary, nearly all the trees are well-fruited. A large number of the acorns bear on their cups galls produced by *Andricus glandulus.* These galls resemble closely minature acorns, as the inner gall containing the larvæ is formed in a small cup with a mossy-fringed border like that of the acorn. When mature the inner gall falls out of the cup to the ground, where the larva remains in it and does not mature until the following spring.

Division No. 4.—F. J. A. Morris, Peterborough.

One of the first events of the season was the appearance of borers about Virginia Creeper on a neighbour's garden wall. Warned by the previous year's date of emergency I was on the look out before the close of May. Sure enough, on the 29th of May I began to find specimens of *Psenocerus supernotatus* about the broken stems and dead twigs at the base of the shrubbery and in the course of four or five days captured over a score of these. On May 31st I observed the first specimen of *Saperda puncticollis,* and between June 1st and June 10ah I captured over forty. They were nearly always taken on the foliage near the top of the hedge. In bright, hot sunshine they became very active crawling out on to leaves and flying about with great readiness. On June 19th while exploring a wood west of Bethany Junction I found feeding on the blossoms of maple-leaved Vibernum or Dockmackie a species of Leptura that was new to me; it proved to be *L. octonotata.* On June 30th while exploring the northwest corner of the famous Murray Swamp between Meyersburg and Codrington, on the alders at its edge I captured my first specimen of the handsome little buprestid *Eupristocerus cogitans.*

On Saturday, July 17, while wheeling across the Oak Hills between Stirling and Frankford, noticing large patches of New Jersey Tea in bloom about the edges of the groves of oak and pine, I dismounted in the hope that the oak might breed certain new species of anthophilous beetles; my hopes were realized by finding among several familiar forms of Leptura and Typocerus, the less common *Typocerus lugubris* and *Leptura zebra;* the latter I regard as quite a prize: it bores in oak and I made three captures in my short stay.

On Tuesday, July 20th, while on a botany trip north of Norwood, I spied a specimen of the brilliant little *Chrysobothris Harrisii* settling on some pine brush; I had only once before seen this creature (many years ago, at Lanark) and had never captured it. It was therefore a great triumph to take three specimens during the day, all on branches of white pine lying beside the road. I saw several others, but they were too active for capture. On the same day, in a rocky hardwood heavily culled, I noticed by the path some shrubs of New Jersey Tea in bloom and acting hosts to a varied gathering of guests; among many common species I was overjoyed to capture two specimens of *Leptura plebeja.*

In August while camping in the Algonquin Park I took both sexes of *Leptura hamata* and a single speciment of *Leptura biforis.*

NOTES ON LEAF BUGS (*MIRIDAE*) ATTACKING FRUIT TREES IN ONTARIO.

L. Caesar, Guelph.

The cause of deformed or disfigured fruit is always a matter of much interest to entomologists. All deformities of course are not due to insects for there is no doubt that some are brought about by other factors such as imperfect fertilization, some of the so-called physiological diseases, and by fungi. By far the majority, however, are due to insects. Of the insect agents Leaf Bugs (Miridae) play an important part—a part that has only begun to be realized the last few years. Slingerland and Crosby by their work on the Red Bugs (*Heterocordylus malinus* and *Lygidea mendax*), were among the first to call our attention to Leaf Bug injuries. Since then Parrott and Hodgkiss, Brittain and several others both in North America and Europe have added greatly to our knowledge; so that now there is a fairly long list of Miridae known to attack fruit. In Ontario I have observed the following:—*Heterocordylus malinus, Lygidea mendax, Neurocolpus nubilus, Paracalocoris colon, Campylomma verbasci, Lygus communis* and *Lygus quercalbae.*

The last two were discovered as offenders only this year and fortunately each seems limited to a small area. They are not, however, new insects nor are their fruit-feeding habits in Ontario new; for the owners of the orchards in each case have observed their work for several years without, however, knowing the name of the insect.

Lygus communis is the so-called Green Apple Bug of Nova Scotia, and also the False Tarnished Plant Bug of New York which Parrott and Hodgkiss found attacking pears in that State. This insect was found by me this year in two orchards at Newcastle, both orchards containing apples as well as pears.

An interesting feature about its work was that both pears and apples were attacked. Now Knight states in his "Revision of the Genus Lygus" that he spent four summers inspecting orchards in New York state and was unable to take any form of *L. communis* on apples, though he says Herrick received the typical *communis* last year from apples in Eastern New York. Brittain, however, tells me that it is preeminently an apple pest in Nova Scotia and that any injury to pears there is largely brought about by the adults flying in from neighboring apple trees and feeding upon the fruit. At Newcastle both nymphs and adults were observed both on apples and pears. For instance, at my second visit I estimated that from 20 to 60 per cent. of Ben Davis apples were attacked and from 30 to 90 per cent. of the pears.

Another interesting peculiarity of the attack was that the blighting of young fruit and twigs, so common in Nova Scotia and at first mistaken there for Pear Blight, was very little, if at all, in evidence on any tree. My first visit to the orchards was on June 25th at which time most of the nymphs were in their last instar and a considerable number had transformed into adults. The second visit was on July 14th when no nymphs were seen but adults were very abundant and though concealed on the twigs could easily be knocked into any receptacle; in fact I caught nearly all mine by tapping the branches and knocking them into my hat. The third visit was on September 10th. No adults were then present.

An examination of the orchard at this date showed that a remarkably large percentage of the apples had outgrown the injury, though some had doubtless dropped off. Only about two per cent. showed any noticeable injuries. These injuries took the form either of deep depressions or of small elevations with a brown, rusty surface.

Pears had not outgrown the injury but had become worse as they increased in size. In orchards of about an acre in extent the fruit of every variety was badly deformed, apparently over 90 per cent. being knotty or scarred and unmarketable. In the other orchard 50 per cent. were affected. In this latter orchard the injury consisted chiefly of unsightly large and small brown scars on the surface without many deep depressions. The former pear orchard had more of the knotty type of injury with the deep depressions and stone cells; though many surface scars were also in evidence. Hence, it is just possible another Mirid, or some other insect than *L. communis* was also at work in it.

In both orchards many specimens of *Camptobrochis borealis,* a brown Mirid slightly larger than *L. communis* were taken by beating, both species being present, as a rule, in about equal numbers on the same branches. Knight says this species feeds upon Rosy Aphis of Apple and also upon *Phyllaphis fagi* on beech trees, but that, while he has never seen it puncturing apples he thinks it might do so when abundant, for when aphids are not present it will subsist on sap from the apple tree. In the case in question there were very few aphids on the apple trees; therefore it will be interesting to see next year whether we have here, as in the case of *Campylomma verbasci, Neurocolpus nubilus* and some other Mirids, an example of the changing food habits of an insect.

All the Mirids referred to so far have attacked either apple or pear or in some cases both, but I wish now to call attention to a species that did much damage to peaches in at least one orchard and to some extent for several years. At St. David's in the Niagara district there is a peach orchard of about six acres, bordered on two adjoining sides by woods, in which are a good many oak trees. About 90 per cent. of the fruit on fully half of this orchard, namely all the portion near the oak trees, was so badly scarred by the feeding of adult Mirids that it was unmarketable and not profitable for canning factory purposes because it would all have to be pared by hand instead of by alkali and machinery as is the usual custom. Only a small part of the affected fruit was knobby for the injury seldom affected the shape of the peach. At my first visit, June 26th, almost every fruit in this portion of the orchard had from one to five or six adults feeding or resting upon it. The species as determined by Knight was *Lygus quercalbae,* a species that Knight says breeds so far as he knows on white oak only. There is almost no doubt that the adults flew to the peaches from the surrounding oak trees, though I could find very few on oak leaves at the above date. A neighbor stated at the time, and of course before I heard from Knight, that he felt sure they had come from the oak trees because a few days before they were very plentiful on these trees. An inspection of the orchard also revealed that the farther the peach trees were situated from the oaks the fewer the number of adults and of injuries. This was true even of peaches alongside a pond surrounded by such trees as poplar, sassafras, willow and sumac but not oaks.

As fully three-quarters of the oak trees in the woods were not white oaks but red oaks with sharp pointed lobes on the leaves, I cannot help but think that *Lygus quercalbae* must breed on red oak also. Another thing that tends to confirm this belief is that numerous eggs of a Mirid were found on red oak twigs, either in the tissues beneath or alongside the newly formed buds or beneath the leaf stem. Eggs on white oak were also easily found in the same place though more in this case were situated beneath the leaf stem. This slight variation, however, could be accounted for easily by the difference in size of the buds of the two varieties. Knight tells me that Parrott reported to him from New York State a similar case of injury to peaches this year from *Lygus caryae,* the adults having flown into the orchard from hickory trees on which they breed.

Whether the above action of *Lygus quercalbae* and *L. caryae* portends a greater amount of trouble in orchards from Miridae or not, only time can tell, but I sincerely hope it does not because they are among the most difficult of insects to control.

THE MANITOBA GRASSHOPPER CAMPAIGN OF 1920.

A. V. Mitchener, Winnipeg, Man.

As early as the year 1865 we have records of damage done by grasshoppers in Manitoba. The Rocky Mountain Locust (*Melanoplus spretus*) migrated from the south-west to the Red River Valley and entirely devoured the crops of those early settlers. Since that time there have been outbreaks of locusts at various times, but none so severe and extended as the outbreak which began in 1919. During that year, damage was largely confined to a restricted portion of the south-western part of Manitoba. In the spring of 1920, grasshoppers appeared over a much larger area; and it is with this particular phase of the outbreak that we are here concerned.

The area most severely infested in 1920 included six municipalities in the extreme south-western corner of the province with an area of 1,728 square miles. Here practically every farm was polluted with eggs, and later on with locusts. Outside of this area and immediately surrounding it on the north and on the west was an area of over 4,000 square miles where the infestation was less severe on an average but where grasshoppers were very numerous in places. In other parts of the province there were scattered areas, usually not large, where grasshoppers did some damage to the crops.

On May 17th when the area was first visited, young grasshoppers were hatching in great numbers from the lighter soils. Examinations were made in the sod along roadsides, fences, lanes, etc., and in stubble fields to find out what the prospects were for grasshoppers later in the season. As many as seventy-five egg clusters were found to the square foot. Each egg cluster averaged about twenty eggs. This meant that millions of eggs were in the sod along fences bordering the grain fields. Later in the season when most of the eggs had hatched, the edges of grain fields were literally swarming with tiny hoppers, and it was no unusual sight to see hundreds of thousands huddled together along the edges of the fields. When young they went into a field slowly: as they progressed, they entirely stripped the ground of every blade of grain. Nothing was left. The ground was as bare as a summer-fallow. During this period of their life poisoning was much more easily accomplished than later when they had spread all through the standing grain.

In Manitoba we have a large number of species of locusts which are native to the province. All those species that have been injurious during the present outbreak are native. They are present every year; but due to dry weather and other causes have increased enormously in numbers during the past few years. The four most injurious forms are:

Camnula pellucida, The Pellucid Locust.
Melanoplus atlanis, The Lesser Migratory Locust.
Melanoplus femur-rubrum. The Red-legged Locust.
Melanoplus bivittatus, The Two-striped Locust.

These are not the only ones, but are the principal ones with which we had to contend.

During the latter part of May organization meetings were held in the towns in the infested area where it was decided to fight the locusts with poisoned baits. The plan suggested by the provincial Department of Agriculture was adopted. The plan of campaign, briefly, was to have each municipality a unit with the reeve in charge of the whole. Each of the four councillors was to have charge of his ward under the general control of the reeve. Mixing stations were to be established at convenient points where the farmers could obtain the poisoned bait ready mixed. Each farmer was responsible for his own land and the roadsides next to his land. In case of waste lands, men were to be hired by the council to put the bait out. The cost of the campaign was to be borne both by the provincial government and by the municipalities where the campaign was carried on. The provincial government agreed to furnish all the ingredients for the poisoned baits free, while the municipalities were to bear all the local expenses such as the cost of labor for mixing, rentals for buildings, gasoline, etc.

At the beginning of the campaign the mixing was done mostly by hand, but soon the demand for bait was so great that the farmers could not be supplied. This situation produced the Manitoba Mixer, a machine designed to turn out several tons of mixture per day. This machine is run with a gasoline engine of 1½ to 2 horse-power. Other types of machines were tried out; but the one based upon he principle of a stationary drum with revolving stirring rods on the inside proved pre-eminently satisfactory. Two or three men are required to keep the mixer running to full capacity. A maximum output was obtained when the routine work was divided among the workers, each man having certain duties to perform. Some idea may be gained of the amount of work accomplished at one of these stations in a day when it is stated that on June 15th, 185 farmers called at one station alone for some 39,800 lbs. of poisoned bait. Records were kept of all the poisoned bait sent out from these stations. A blank form was provided, which was filled in by the farmer when the baits were taken from the station.

At the beginning of the campaign the poisoned bait known as the Kansas Mixture was used with success. This bait is made up of the following materials:

Bran	100 lbs.
White Arsenic, or Paris Green	5 lbs.
Lemons	12-15 fruits.
Black Strap molasses	2 gals.
Water	14 gals.

The bran and the dry poison were first put in the Mixer and thoroughly intermingled. The Mixer was then opened and the liquid consisting of ground lemons, molasses, and water was added. The whole was then stirred until thoroughly mixed, when it was dumped out on the floor, ready to be scooped up in sacks by the waiting farmers. The whole operation was immediately repeated. During the worst part of the campaign, the mixing stations were kept going from early in the morning until well on toward midnight.

At some of the stations, a mixture consisting of the following materials was used; viz.,

Bran	100 lbs.
White Arsenic, or Paris Green	4 lbs.
Salt	2 lbs.
Water	14 gals.

This mixture was first substituted for the Kansas Mixture when supplies of molasses and lemons ran out, and later was used at one of the stations even when fruit and molasses were obtainable. At this station, they claimed that it gave as good results as the Kansas Mixture. However, the consensus of opinion was that the Kansas Mixture gave somewhat more reliable results over the whole area.

Later in the season, a modified Kansas Mixture was used with most excellent results. In this mixture, instead of using 100 lbs. of bran as a base for the other ingredients, 50 lbs of bran and an equal bulk of sawdust were used as the base. The addition of the sawdust improved the physical properties of the mixture. It broke up more readily when being scattered on the land, and of course, had the other advantage of making a much cheaper mixture. The other ingredients used in this bait were the same as those used in the Kansas Mixture.

The Criddle Mixture was used with good results by some of the farmers; but owing to the relative scarcity of horse droppings, and also due to the fact that the other mixture was free, this remedy was not used on a large scale. The mixture consists of the following ingredients.

Fresh horse droppings	15 gals.
White Arsenic or Paris Green	1 lb.
Salt	1 lb.

Water sufficient to moisten.

Sawdust to replace one-half of the horse droppings was found to improve the physical condition of the mixture.

White Arsenic is superior to Paris Green as a poison in the mixtures. Paris Green is a very fine powder and rises readily as a dust in the air. This is breathed by the workers, and sometimes produces bad cases of poisoning. The White Arsenic does not float around in the air nearly so readily; hence, is greatly to be preferred on that account. Some of the workers used masks so that they might not breathe the poisons. White Arsenic seemed to give as good results as Paris Green, and costs about a quarter as much per pound. Its one disadvantage is its color. Paris Green can be seen in the mixture more easily.

The mixtures were spread during the first part of the season in the early morning. Later, they were spread almost at any time except in the heat of the day. Bright, sunny, calm days were best. Very poor results were obtained when the mixture was scattered during cold, wet weather.

The campaign of poisoning continued from the last week in May until about July 23rd. The demand for bait fluctuated very much during that time, but reached it maximum during the week of June 14th to 19th. There were upon record 7,703 applications from farmers for a total of 1,659,100 lbs. of prepared bait during that time.

Practically every farmer in the grasshopper area reports satisfaction from the use of poisoned baits. Actual counts of dead 'hoppers showed almost incredible numbers in some places. On June 12th on a piece of sod road allowance, an area of one square foot showed 440 dead grasshoppers. An average of eight counts taken in widely separated places showed 1,035 dead 'hoppers per sq. yd. The largest count made was 34 dead to 4 square inches of surface. This figures out to over 53 million dead 'hoppers to the acre. There is absolutely no question about the effectiveness of poisoned baits.

The following table shows the estimated value of the various crops saved by the use of the poisoned baits:

Value of Crops Saved By Poisoned Baits, 1920.

Wheat	$10,293,920.00
Oats	3,900,067.00
Barley	1,065,370.00
Rye	574,576.00
Flax	250,755.00
Total	$16,084,688.00

This estimate only includes that part of the province lying west of range 15, and south of township 12. The value of the total crop saved outside of this area is roughly valued at one million dollars, making a total saving of over seventeen million dollars' worth of grain besides a great deal of native grass, etc.

The ingredients for the poisoned baits used in Manitoba in 1920 cost in the neighborhood of $155,000.00 while the estimated value of the crops saved is $17,084,688.00. This means that for every dollar spent in baits one hundred and ten dollars' worth of crop was saved. From the standpoint of this year's crop alone, it can be seen that the campaign was a success. What it will mean to subsequent crops, we can only venture an opinion.

SOME PHASES OF THE PRESENT LOCUST OUTBREAK IN MANITOBA.

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The present locust outbreak in Manitoba is the first that has occurred in those parts with a professional entomologist residing close at hand. It is, therefore, the first occasion we have had for studying the insects in all their conditions of life. Unfortunately the severity of the outbreak obliged us to devote most of our time to control measures rather than to life studies, but no one could cover the infested areas, as we have done, without observing the insects' habits. Nor could they fail to take note of the various factors which must eventually bring the pest under control. It is true that such observations were often casual at first and frequently quite fragmentary, but, by degrees, they have been marshalled into definite order so that the accumulation provides many of the facts we were in search of.

One of the most important features of the present locust outbreak has been the complications due to the presence of two genera which have, in some respects, very dissimilar habits. There have also been a number of species involved which differ somewhat in their general habits, though with the one exception these all belong to the genus *Melanoplus.*

The chief offenders during the present outbreak have been the Lesser Migratory Locust, *Melanoplus atlanis,* and the Road-side locust, *Camnula pellucida.* The habits of the first are too well known to make it necessary for me to go into details. I will merely state, therefore, that it prefers the stubble fields or old deserted farms for egg laying and that it deposits its eggs around vegetation rather than in the midst of it. The Road-side locust, on the other hand, avoids the stubble fields and similar areas, selecting instead land that is under grass, with a special preference for the unbroken lands along road-sides. Hence the name Road-side locust instead of the inappropriate one of Pellucid locust. Incidently I might point out that the wings of *Camnula* are not truly pellucid, but are yellowish, secondly all species of *Melanoplus* are clear-winged, consequently the name "pellucid" is not at all a happy one. In addition to its habit of selecting sod land for egg laying purposes the Road-side locust differs from the Lesser Migratory locust in that it deposits its eggs amid the clumps of grass instead of around or between them.

The marked difference in egg laying habits was detected at the commencement of the outbreak even before we were sure of the species involved. Later we found that the Road-side locust was even more particular in its selection of egg-laying sites than we supposed. Not only grass lands were required but a particular species of grass. True there are exceptions to this habit but, so far as we could learn, the only marked exceptions occurred when the favorite breeding grounds were absent while somewhat similar ones were present in their stead.

The areas chosen by the Road-side locust for egg laying are generally on uplands having a dryish aspect. Their chief attraction, however lies in the presence of Western Couch grass. *Agropyron smithii.* This grass has many of the habits of its eastern ally, but is distinguished by a very marked bluish tinge to the leaves. It is a common grass in the west and grows in large dense patches. It is amid this grass that the Road-side locusts congregate towards the middle of July, flying from the fields that they have previously infested. They soon attain very large numbers so that an area of a few square yards may contain thousands. Breeding is now the chief object in life, and egg-laying is continuous whenever the weather is suitable. The appearance of the breeding areas at this time is a remarkable one. Individuals of both sexes are constantly in motion while the least alarm sends them off into the air. Scattered over the practically bare ground, for they have eaten it clean, are numerous small heaps of the insects which close inspection shows to be made up of ovipositing females with eight or ten males clinging around each.

It is no wonder that these breeding grounds become literally packed with eggs, yet it seems remarkable that the lands so close around should be practically without them. I have observed places where it was impossible to stick the point of a knife into the ground without revealing a sac of eggs. In others I counted fully 3,000 eggs to a square foot of sod.

As noted above, these breeding places become very much denuded of vegetation, and they are, consequently, easily noted even at a distance. This fact has been of great value to us in scouting for eggs, as it has enabled us to drive quickly over the country and pick out the infested places from a motor car. We have also been able to make practical recommendations to the farmers for dealing with these egg areas.

Apart from the two main locusts mentioned before, we have had several others of less importance. In some districts the Two-striped locust occurred in large numbers and its egg masses of sixty or more eggs were not uncommon last fall. The Red-legged locust was also present in all parts and was especially noticeable late in the season due to the fact that it appears later in the spring and is consequently later in maturing. This last insect inhabits rather wetter ground than does *atlanis*.

The natural control of locusts involves many factors, some at least of which are imperfectly understood. That dryness favours the insects' increase, is generally acknowledged, just as wet seems to produce a contrary effect, but we have yet to learn when these factors come most into play. My own experiments go to show that cold in itself does not affect the eggs but that heat does. Thus eggs exposed to all the vicissitudes of winter on top of the ground came through without important mishap while similar ones exposed to the sun in April and May were nearly all destroyed. Eggs exposed in September in the same way also lost their vitality.

The most interesting part of the work, in my estimation, has been that of watching for the causes which must eventually reduce the pest to insignificance. They are undoubtedly at work around us now, but so many circumstances arise in connection with them that it is very difficult even at this time, to accurately forecast what agencies will ultimately bring the insects under control.

In 1919 we had reason to expect that flesh flies, among which *Sarcophaga kellyi* was prominent, would prove an important factor in the locusts control, but unfortunately the large increase of the previous year was not maintained in 1920.

The common fungus disease, *Empusa grilli*, did much in restricted areas, and took locusts sparingly nearly everywhere in both 1919 and 1920. It is one of those diseases that appears with great suddenness over large sections of the country but is checked with equal rapidity.

Locust mites (*Trombidium sp.*) have increased enormously and during the present year fully seventy per cent. of the species of *Melanoplus* were heavily infested. Their presence on the locusts, however, appeared to produce little effect and when they dropped off in the course of a few weeks, the locusts went about their work apparently none the worse for the experience.

It is interesting to note here, that the Road-side locust escaped these mites almost entirely even when the two genera intermingled.

While mites appear to play but a minor part in reducing the adult locusts it is possible that they are of more importance as destroyers of locust eggs. I found them not uncommonly in egg sacs of *Melanoplus* where they appeared to be doing excellent work, but here again *Camnula* escaped their attack.

Two locust enemies came prominently into play during 1920, both egg destroyers. They were species of blister beetle and the Locust bee-fly (*Systœchus vulgaris*). There is no doubt that these insects have been of marked benefit, and at present they are by far the most promising of all the locust enemies. The locust bee-fly has been especially notable for its destruction of locust eggs, in some restricted areas ninety per cent. of the eggs being destroyed by its larvæ, while there are very few districts that do not show its presence in numbers. In the earlier locust infested parts of the province, the Bee-flies occurred in enormous numbers and during July they might be seen resting on nearly every blossom.

We found blister beetles nearly everywhere though the abundance of the various species is naturally governed by the presence or absence of their food plants. The two most important species during 1920 were *Macrobasis unicolor* var. *murina* and *Cantharis sphœricollis.* The first is somewhat of a pest to all members of the pea family as well as to potatoes, and is often known as the Black Potato beetle. The Cantharis, on the other hand, has for its native food plant the prairie snowberry, *Symphorocarpus occidentalis*, but from this it has spread to species of cultivated honeysuckle which it sometimes defoliates.

Apart from these more important species there are two others of lesser value, namely *Epicauta sericans* and *Cantharis nuttalli.* The first of these feeds chiefly upon species of *Anemone,* but has been found eating lambsquarters also. The latter is usually found upon members of the pea family, and is locally known as the Caragana beetle owing to its habit of feeding upon that shrub.

There seems to be little doubt that the larvæ of each of these species destroy locust eggs as the increase of the beetles coincide with a similar increase of locusts. We have also reared some kinds from the egg, while others have been found among them.

In comparing the destruction wrought by the principal enemies of locusts' eggs, I was interested to find that the larvæ of bee-flies were much more numerous in the egg-sacs of *Camnula* than in those of *Melanoplus,* while blister beetle larvæ, on the other hand, showed a marked preference for the eggs of the latter genus.

One other ally was reared from locust eggs during the year. It is, I think, that small hymenopterous insect described by Riley as *Scelio luggeri.* As a rule every egg in a sac will be infested, each producing a single adult. It is interesting to know that this insect takes a full year to reach maturity and that it emerges at the time when the locusts are busily laying eggs. The parasite, therefore, finds abundance of food available for the perpetuation of the species. I am unable to state, at present, what part this little insect played in the locust egg destruction of 1920.

On reviewing the results to date, I think we have every reason for being satisfied with the progress attained. The artificial methods of control were all that we could possibly expect. I do not think the country has ever been threatened with such serious losses by insects and yet escaped so lightly, and this, of course applies equally to Saskatchewan and Alberta. We have also reason for believing that the locust outbreak in Manitoba has reached its greatest magnitude and that next year will begin to show a reduction in the hordes of 'hoppers which have given us so much trouble to date. Such reductions, when they do come, usually terminate the outbreaks quickly. But while the prospects are encouraging for the near future, we must not forget the present. We have almost surely to face a continuation of the pest next spring and it behooves us to be prepared for the worst, even though we may expect relief in the course of a year or so.

THE INFLUENCE OF LOCUSTS ON THE RANGES OF BRITISH COLUMBIA.

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During the past few years there have been a number of reports of locust injury in British Columbia. The most important outbreaks have been in the range areas throughout the Dry Belt of the Province from the United States Boundary to the Chilcotin district as far north as Latitude 52.

As the damage done by locusts has been in some cases of considerable importance, and in view of the fact that the Provincial Government has been asked, by settlers, for aid in controlling the locusts which have been destroying their crops, it was thought advisable to make a study of the species of locusts to be found on the range areas of British Columbia and to devise, if possible, remedial measures.

Reports had been received that the Riske Creek range and adjoining ranges in the Chilcotin district were being seriously damaged by locusts. Consequently this area, being a typical range area, was selected for special study, although contact was maintained with the conditions presented on other range areas.

The work undertaken in the Chilcotin district was a study of the life-histories and habits of the Orthoptera of the region. Special attention was paid to the species damaging the grass on the cattle ranges. Some experiments have also been conducted with poisoned bran bait on the open range to ascertain its value.

In studying the distribution, life histories and habits of a group of insects, such as the Orthoptera, it is of great importance to make a collection of all the species present, in as many localities as possible, with notes on their relative abundance and typical habitats. It is desirable also at the same time to make a study of the Ecological factors, Meteorological conditions, and the Floral and Faunal characteristics of the locality, and the types of soils. If the line of study indicated above is carried out it may be found that certain species of Orthoptera are definitely associated with certain distinct types of soils, vegetation or Faunal zones. If our information be exact enough we may be able to decide with little difficulty what species may be expected to occur in any given locality, and whether any of the species present are liable to cause serious or marked injury. Furthermore from poison bait experiments we would be able to tell whether an outbreak is one which can or cannot be successfully controlled.

The Riske Creek range is a triangular piece of country lying in the angle made by the junction of the Chilcotin and Fraser rivers. This area contains about 300 square miles of which by far the greater part is open grass land used as a cattle range. It lies 150 miles north-west of Ashcroft on the 52nd Parallel.

The Riske Creek range is part of an undulating plateau ranging in elevation from 3,000 ft. to 3,500 ft. and the rivers bounding this area on two sides lie in deep terraced U-shaped valleys from 1,500 to 2,000 ft. below the level of the main plateau. According to the Canadian Commission of Conservation Report on the Forests of British Columbia by H. N. Whitford and R. D. Craig, the

Chilcotin district at Big Creek has a mean annual temperature of 37°, a winter mean of 17°, and a summer mean of 57° Fahr. The annual rainfall is about 15 inches. This area is volcanic in origin, but many glacial deposits occur; some portions of the range showing long lines of ice-worn boulders undoubtedly the remains of glacial moraines.

The Riske Creek range and the country adjoining it lies in the Interior Douglas Fir type of forest. The Sage- brush (*Artemesia tridentata*) reaches up the lower part of the Fraser valley to the mouth of the Chilcotin river, and the Western Yellow Pine (*Pinus ponderosa*) also disappears at about this point. On the higher portions of the Chilcotin plateau above 3,500 ft. line, the Douglas Fir type merges into the Englemann Spruce type of forest. At the present time a large portion of the original Douglas Fir stand has been replaced by the Lodgepole Pine (*Pinus contoria*), the Douglas Fir (*Pseudotsuga mucronata*) having been destroyed by fires.

The open range was originally and approximately 15 years ago covered with a fine stand of Bunch-grass (*Agropyron spp.*), often from two or three feet in height and the settlers were in the habit of mowing and stacking it for hay. To-day this grass has been practically destroyed, largely by overgrazing. Three species of *Agropyron* are believed to occur.

Several plants which are typical of the Dry Belt are found, among which may be mentioned the Rabbit-brush (*Chrysothamnus sp.*) and the Prickly Pear or Cactus (*Opuntia polyacantha*).

The main plateau of the Riske Creek range lying south of a line drawn from Hanceville on the Chilcotin river to Meldrum Creek on the Fraser, is almost entirely open grass land on which innumerable clumps and patches of timber grow

The timber is either Aspen (*Populus tremuloid s*) or Douglas Fir and Lodgepole Pine. In many cases the centre of the clump is composed of Fir and Pine while a narrow belt of Aspen fringes the outside. These patches of timber may be less than an acre in extent or may cover an area of from 200 to 300 acres. In moist locations, such as the margins of lakes and in creek bottoms, the Western Birch (*Betula occidentalis*) is often associated with the Aspen and several species of Willow (*Salix*) are commonly found. The Mountain Birch (*Betula fontinalis*) grows commonly in the bogs. On many of the warm slopes the Rocky Mountain Juniper (*Juniperus scopulorum*) is common.

The range is well watered by several creeks and innumerable lakes and "potholes." Many of these are permanent, while others gradually dry up during the summer and are filled again by the melting snow in the spring.

The area just described with the vast timbered country to the north forms the summer range for the cattle.

There is also a very large area of land on the steep slopes of the river valleys.

The upper range often ends very abruptly and the land descends precipitously in a series of terraces to the rivers, which are from 1,500 ft. to 2,000 ft. below. These steep river valley slopes are of two distinct types. Slopes facing towards the north and east are heavily timbered and of little value to the cattle industry. Those slopes facing towards the south and west are free from timber and covered with Bunch-grass.

Those Bunch-grass slopes form the winter ranges, which having been fenced many years ago, and all cattle and horses kept off them except during the winter, still produce a fair stand of Bunch-grass. On any unfenced portions of these slopes on which the cattle have been allowed to range all summer and spring, the Bunch-grass has been practically exterminated by overgrazing just in the same way as it has on the main ranges.

As the cattle and horses increased the Bunch-grass died out, being replaced by a number of other grasses, until to-day the Bunch-grass has been almost entirely destroyed. It can only be found growing in enclosed pastures, such as the winter ranges just mentioned on the river valley slopes, and around homesteaders' shacks where a small area is sometimes fenced to keep out the cattle, or in clumps of rose bushes, cacti, etc., where the cattle cannot eat it down to the ground.

On an adjoining range, known as Alkali Lake range, there are some large areas which have been fenced for a number of years and some interesting observations can be made in these pastures. The winter range, sloping down to the Fraser river has been most carefully guarded and has a fine stand of Bunch-grass growing on it. Many of the plants were more than three feet in height and very large in circumference.

Other fenced areas on the upper range had a fair percentage of Bunch-grass among the other grasses. In these fenced pastures the cattle had been allowed to run only for a few months each year, but even this small amount of grazing has caused about 60 per cent. of the Bunch-grass to disappear.
pastures mentioned above, the Bunch-grass has been almost exterminated and the range presented the same appearance as at Riske Creek. A piece of this bare, depleted range, was fenced in about 1914 and no cattle have been allowed on it since. To-day we find a good stand of grass on this piece of land, but very little Bunch-grass.

From these observations it would appear that Bunch-grass is very easily killed out by cattle, and once gone will not return again unless the roots are still present and alive. The other grasses, however, which replace the Bunch-grass, if kept free from cattle for five or six years, will form a good pasture again. It is worth emphasizing at this point, in drawing attention to the influence of locusts on the range, that the only difference between these good pastures and the bare range outside is the presence of a barbed-wire fence, a complete barrier to the cattle but no hindrance to the grasshoppers should they wish to leave this range and enter the taller grasses of the pastures. As a matter of fact, as will be shown later, the grasshoppers do not prefer the longer grass of these pastures but will remain outside so long as a vestige of green vegetation remains. If they enter they only feed on the edges, the tall grass being an unnatural habitat of these insects, particularly of the main injurious species.

At the time when the Riske Creek range was covered with Bunch-grass, and in fact, up until the last few years when the increase in cattle and horses has kept the range continually eaten down, the grasshoppers were never in sufficient numbers to be noticed by the settlers. Several of the older ranchers claim that grasshoppers were not present on the ranges in the early days, but have come suddenly during the last few years. There is little doubt that this statement in its substance is incorrect. It is probable that all the injurious species, now found, were present in the years gone by, but in far smaller numbers and have only increased but slightly from time to time.

There is little doubt that the main injurious species of grasshoppers found on the British Columbia ranges are insects whose natural habitat is a dry, bare.

closely-grazed range, their food consisting of the small tender grass shoots which continue to come up although the grass is persistently eaten down by stock. This young grass comes up throughout the spring and summer and early fall, except during the hottest weather in July and August, in the same manner that lawn grass continues to grow on a lawn which is kept mown. As soon as the intense heat comes about July 1st, the young shoots of grass cease to appear and in a few days all the young green blades are eaten up by the grasshoppers and the range changes suddenly from a green colour to a dead brown and not a particle of green feed is left. The cattle which have been on this open range since they were turned out of the feed-yards and winter ranges in the spring, disappear into the timber for the first time and search out the wild hay in the small natural meadows in the timber.

The majority of the grasshoppers whose natural habitat is the open range, spread into the timber, or into any growing crop or fenced pasture where there is standing grass or vegetation of any kind. The reason for this is that, after they have cut off all standing grass on the open ranges and the grass particles being left lying loose upon the ground, they were unable to feed upon it as it slips away from them when they try to bite it. The range often presents an appearance as though a miniature mowing machine had been over it when examined two or three days after a hot spell has set in and checked further growth. Until this time of drought the tall tough flowering stalks are seldom touched by the grasshoppers, but the tiny tender new shoots coming up around the base of the plant form the chief food. They are attacked from the tip when less than 1½ inches high and are eaten down to the ground, there being no waste. Any grass blades from two to six inches in height which have escaped the grasshoppers and the coarse flowering stalks, are only attacked when drought causes the supply of tender shoots to fail. This grass is gnawed off about one inch from the ground and forms the material seen on the ground a few days after drought sets in, as described above.

Where cattle are allowed, as on the Riske Creek range, to remain out on the open grass land from the time the snow goes in the spring until it becomes deep again in the fall, the grass has very little chance to seed as the flowering heads are eagerly sought after by cattle, particularly by horses and sheep. It is believed that the part played by grasshoppers in causing the disappearance of the Bunch-grass from range so grazed may be considered slight indeed. That they help very materially to keep it in a depleted condition cannot be doubted.

The feeding of the cattle and horses, by killing out the Bunch-grass and causing the range to be thinly clothed by low growing grasses, opened the range to the full glare of the sun and creates an ideal habitat for the species which are the most injurious in British Columbia. With the disappearance of the Bunch-grass, these injurious species, probably rare hitherto, doubtless increased rapidly in numbers while the species adapted to the Bunch-grass type of land are to-day practically extinct on the upper ranges, and are only met with among the Bunch-grass of the winter ranges. The species whose natural habitat is among the Bunch-grass, have seldom been known to increase sufficiently to cause injury, so that the Bunch-grass does not suffer much damage from its natural inhabitants, the damage being done during periods of drought, by the migration of the injurious species, which are present in great numbers on the depleted range immediately outside the winter range fences.

A good example of this point was seen this summer. A section of winter range situated on the banks of the Fraser river was observed. For five miles outside this winter range fence the range was swarming with the injurious species of locusts and no Bunch-grass was visible. In many places the grasshoppers were present at the rate of from fifteen to thirty to the square yard. Immediately inside the barbed-wire fence was a fine stand of Bunch-grass, in places higher than one's waist and showing no signs of grasshopper injury. Ten yards inside the fence there were about five grasshoppers to the square yard; at twenty only an occasional specimen of the injurious species could be found, but a few of the species typical to Bunch-grass land were seen. At the time that these first observations were made the injurious species were confining their attention to the young green grass shoots which were plentiful on the open range. The barbed-wire fence seemed literally to be a barrier, the choice of food keeping them outside.

A few weeks later, on July 30th, after the drought had set in, this area was again visited. In riding across the main range it was noticed that there were now no green shoots coming up and the grasshoppers had cut down all the standing grass, which was lying about on the ground as before described. As the winter range was approached the grasshoppers became markedly scarcer, especially was this the case with *Camnula pellucida*, a habitually migratory species. On reaching the winter range a distinct change could be seen, particularly just inside the fence. On entering the winter range it was found to be swarming with the injurious species of grasshoppers which were working in from the open range outside. The Bunch-grass plants presented a broken, ragged appearance, and the ground beneath the plants was strewn with pieces of stalk and leaves which had been bitten off.

As one advanced further into the winter range the damage became gradually less and less apparent, until at about 300 yards from the fence hardly any of the injurious species could be found. The spell of dry weather was unusually severe this year and the grasshoppers being more numerous than hitherto recorded in this locality, the damage to winter ranges was of considerable importance. As well as spreading into the winter ranges the grasshoppers entered the timber and ate the timber grass and the Aspen leaves, and could be found in some places to have penetrated to a depth of two miles. Towards the end of August some very heavy rains occurred, and in the course of a week the range was a sheet of green again instead of a dead brown. Every grass plant had sent up a number of new tender shoots.

As soon as this occurred the majority of the grasshoppers deserted the dry Bunch-grass of the winter ranges and the timber, and went out on to the main ranges again. They were on the decrease by this time, and were quite incapable of keeping down the new grass. The cattle, it was also noticed, left the timber at this time and worked out on to the open ranges again, where they had an abundance of good green fall feed.

It may be understood from what has been said that overgrazing of a range bears a very important relation to the increase of the locusts. Overgrazing causes the disappearance of some species of grasshoppers, while it favours the increase of others. The species which benefit by the overgrazing are unfortunately the most destructive species found in British Columbia. Not only does the overgrazing of a large area favour the increase of some species but it may even change the habits of oviposition and feeding of some of those species.

To illustrate this point it may be mentioned that *Camnula pellucida,* one of the main injurious species, is stated to have the habit of remaining together in swarms and of migrating over the country during the summer, often entering long grass and grain fields which are quite unsuitable for oviposition. Under ordinary circumstances, as soon as the females are ready to lay their eggs they leave the main swarm and fly to special egg-laying grounds. These egg-laying grounds or egg-beds, it is claimed, are usually situated on flat, dry, alkaline pieces of ground covered with close cropped grass, or on low, raised, dry, gravelly knolls. It has been recorded that this species, although distributed over hundreds of square miles of ground while feeding, will resort to a comparatively few acres of ground for oviposition, where only a small amount of land is of the right nature for their egg-beds. These egg-beds are said to be covered by these grasshoppers during oviposition time, and can be detected from a distance by the smell of the dead bodies of the males, which die soon after pairing.

Camnula pellucida was common on the Riske Creek range and seemed to find the whole range so much to its liking that it did not keep at all rigidly to the so-called typical habits mentioned above. It did not migrate in dense swarms, but spread out from innumerable small egg-beds scattered all over the range. It was often, also, observed to be much more common in some places than in others, but was never observed exhibiting the typical migratory habits in swarms. Oviposition grounds were scattered all over the ranges and eggs were laid in comparatively small numbers in innumerable locations throughout the whole of the high ground on the main upper range.

The range areas in British Columbia, which from time to time become seriously damaged by grasshoppers, are so large and the population so small that at the present time it is not thought to be possible to conduct any control measures by means of poison bran bait. It would also appear in addition that some of our most injurious species will not eat the poison bran bait. The use of hopper-catchers is also considered impractical on account of the enormous areas involved on the British Columbia ranges. The only use that could be made of these machines would be on the small dry farms, where they could probably be used to advantage on the young grain.

Sufficient data have not been gathered at present to give any definite statement as to the effect of the natural control agencies, such as parasites and weather conditions, upon a locust outbreak under range conditions. Probably weather conditions at the time of emergence of the young nymphs from their eggs is the chief controlling agent. To what extent the parasitic and predaceous insects help in controlling the locusts needs further study. Birds undoubtedly destroy large numbers. The fungus disease, undoubtedly *Empusa grylli,* in the Chilcotin district only attacked *Camnula pellucida.* Other species equally common and closely associated with *Camnula pellucida* appeared to be immune to the disease. It is hoped that further information on these points will be available at a later date.

Our chief hope of improving our ranges, and thereby increasing the number of our cattle, would seem to be in an organized system of range rotation where sufficient fences are present to keep the cattle off portions of the range during the growing and seeding seasons of the grasses. It is also believed that the main injurious species of grasshoppers, whose most favourable habitat is a dry, depleted range, would probably decrease considerably in numbers if the range was again covered with a taller and thicker growth of grass. The erection of fences on some of our main ranges, and the close observation of a small, fenced, experimental plot, may help us to find out our best method of improving our cattle ranges throughout British Columbia, and this is the work planned for 1921.

In conclusion, I would like to express my appreciation to Mr. R. C. Treherne, who materially assisted me in the preparation of this paper, and who was largely responsible for the conduct of the experiments, and for his personal supervision of the general details of the locust studies.

THE INVASION OF SOUTHERN ALBERTA BY BEET WEBWORMS.

E. H. Strickland,
Entomologist in Charge of Lethbridge Laboratory.

In the fall of 1919, the second generation of Beet Webworm larvæ (*Loxostege sticticalis L.*) were extremely abundant in several districts in the southern part of Alberta, but since this generation did not appear until September they attracted little attention other than by somewhat impeding trains and by proving an annoying household pest. These larvæ migrate in immense armies, prior to spinning their subterranean cocoons, and refuse to turn aside for any obstruction. Hence they may enter houses in vast swarms, while if any irrigation ditch, or even a horse-trough lies in their line of march they will enter it and drown by the million.

The majority of these hatched from eggs laid on the abundant growth of weeds that sprang up after heavy rains in August, and though they cleared out miles of lambs-quarters and Russian thistle they fed very little on other vegetation.

In the early spring of 1920 immense numbers of cocoons were turned up on weedy stubble, and from a large number of these that were sent to the laboratory for determination, a few specimens of the parasite *Meterous loxostegii* were bred.

By June 6th adults were flying freely, and this flight reached its maximum intensity between the 9th and 20th, when a single light trap on the Entomological Laboratory at Lethbridge captured an average of 2,000 moths a night. Since this was much in excess of anything seen in previous years, and these moths were almost invariably considered as being "cutworm millers," illustrated press articles were sent out from the laboratory describing the habits of the species and the likelihood of there being large migrations of larvæ later in the season. Eggs were not located at Lethbridge on lambs-quarters, which possibly is the exclusive breeding plant in Alberta, till July 12th, but by the 19th a flood of reports were received by phone and letter from points throughout an area of some 3,600 square miles between Lethbridge and Calgary to the effect that migrating larvæ were appearing in enormous numbers and that hundreds of promising gardens were disappearing before their onslaughts. On the 19th of July the district agent of the C.P.R. reported that two trains had been stalled by them on the lines running south from Calgary, and that section foremen were anxious to know what steps should be taken. As a result the whole C.P.R. system in Alberta was circularised that afternoon. Press articles were prepared, and given widespread circulation, but control measures proved somewhat inadequate, inasmuch as the larvæ travelled mainly at night-time and gardens were so heavily infested when the ravages were first seen that spraying was of little avail. Paris green certainly killed them, but they were so numerous that they usually destroyed the crops before they succumbed. Furrows treated with poisoned bait proved to be effective in staying the approach of armies, but since the larvæ bred for the most part upon weeds in "stubbed in" grain fields, and the gardens were often adjoining such fields, little was seen of the moving swarms till they had actually entered the gardens and had almost destroyed them.

On the 23rd-25th of July a trip was made from the laboratory through the worst infested area. For mile after mile the roadsides were stripped bare of weeds, while from many grain fields which had been shockingly weedy there now projected above the wheat, only a forest of bare lambs-quarters' stems. The wheat being practically immune from attack now had the fields to itself. To what extent this most effective weeder improved our crops, which were unavoidably weedy owing to the exceptional seasonal conditions, it is difficult to estimate. One farmer, who was receiving much commiseration from his neighbours since his wreck of a garden had always been considered the best for miles around, was with difficulty lured from the Paris green and coal oil that had taken the entire attention of his family and himself since the larvæ appeared. He did not want to take us to his fields, for he said that he was ashamed of them; he knew they contained more weeds than wheat. When, however, we had made a thorough inspection of them and had found them entirely free from weeds, he asserted that after all the "worms" were the best thing that had ever come his way. The depredation to gardens, however, attracted far more attention than did the improvement of grain fields. At every point visited the same conditions were encountered. Onions were invariably wiped out of existence, and the "worms" often followed these plants down below the surface of the soil in order to feed on the bulb. Sunflowers which are now somewhat extensively grown, had their leaves veined overnight, cabbages, turnips, swedes, and rhubarb came next in preference, beans were less favoured than peas, while potatoes enjoyed immunity when other dainties were present, but fields of this crop which were free from weeds suffered as badly as any, for the larvæ had a tendency to bite through the stem, thus cutting off, though not eating the leaves. The most surprising observation regarding the food choice of these Beet Webworms was that they never fed on beets till they had exhausted other possibilities. Cottonwoods and other poplars to a height of three to four feet from the ground, had their leaves stripped of epidermis. This was a new record, for in former years these trees had proved immune.

In so far as field crops were concerned grain was almost untouched. Wheat, in some cases, had a little epidermis removed from a few blades after all weeds had been entirely destroyed, but the damage was insignificant. No feeding was observed on oats or barley, though we received an unconfirmed report that rye had suffered rather severely. In a few cases corn leaves were attacked and had the upper epidermis extensively eaten. Flax, though fed on freely, was left untouched until all lambs-quarters, pigweed, Russian thistle and buck brush had been consumed. Alfalfa, however, was eaten readily. Fortunately the first generations of webworms were not present in large numbers in the alfalfa-growing districts of Alberta.

On July 26th migrating swarms of larvæ appeared in the city of Calgary, and their numbers increased with such startling rapidity that the effect upon the citizens might almost be described as one of panic. Newspaper headlines referring to the "devastating bugs" appeared in type that is usually reserved for announcing war news or murders. Not only were gardens destroyed wholesale, but the larvæ were entering houses, much to the annoyance of their inmates. All available

Paris green was rapidly used up, some lead arsenate, and Black-leaf-40 were unearthed from forgotten stocks, but by July 30th a newspaper headline announced that there was "No Poison in City to Destroy Bad Bugs." As a result many methods, some of them rather unfortunate, were advocated and put into practice by the city authorities. Among these was the use of a flame thrower for the treatment of vacant lots, on which lambs-quarters grew to profusion.

Migrations of larvæ, however, precede by a few days only their entrance into the soil for pupation and the trouble subsided almost as quickly as it arose.

At the laboratory it was anticipated that the second generation would greatly outnumber the first. Such had been the case in former years. This belief was strengthened when the second flight of moths appeared. As was stated earlier, we captured some 2,000 moths a night in June, during the first flight. Early in August, however, our trap repeatedly overflowed, and since it had a capacity for only some 15,000 moths we do not know how many more visited that single electric bulb in a night, and escaped, by being unable to fall into the cyanide jar below. For this reason we considered it advisable once more to enlist the services of the press in order that we might warn the public of what they might anticipate.

The second generation, however, failed to materialize, owing to the following interesting conditions.

During July the whole infested territory was blessed with two days of heavy rain. This was followed by hot "forcing" weather. As a result there was an excessive growth of tender lambs-quarters, on which the moths laid their eggs in abundance, Subsequently there was an entire absence of rain until late in the fall. This dry period was accompanied by hot winds which soon dried up the egg-infested weeds. In many cases the eggs had not hatched, while very few of the larvæ were sufficiently mature to migrate when the food supply was thus cut off. Hence the majority of them died from starvation among the dead weeds on which they had bred. The shortage of food resulted in an acceleration of maturation in the case of a few individuals, with the result that, during the middle of September, our trap captured a few dwarfed adults, which had little more than half the wing expanse of the normal moth. This is our only record of a partial third generation in Alberta.

Some idea of the possibilities of the second generation, given favourable conditions, was gained in the irrigated district around Brooks. Here the weeds remained succulent, thus allowing the larvæ to develop and to migrate normally. In this district the first generation was insufficiently numerous to attract attention.

Towards the end of August several fields of first year alfalfa, standing about one foot in height, were attacked by migrating swarms. Almost overnight, they had every leaf veined, so that the whole field turned white. The growers feared that their crops had been killed outright. Alfalfa, however, stands more rough treatment than does any other crop grown in Alberta, and when the infested fields were inspected on September 10th they were found to be covered with new growth and apparently they suffered very little from the close pasturing to which they had been subjected.

Probably the Beet Webworm will attract little attention in 1921, even though cocoons containing hibernating larvæ are abundant in weedy stubble field. When it is present in comparatively small numbers it is always a beneficial insect. and despite the alarm and inconvenience that it caused this year we are convinced that its activities have been of financial benefit to Southern Alberta.

THE PRESENT STATUS OF THE HESSIAN FLY IN WESTERN ONTARIO.

H. F. Hudson, Dominion Entomological Laboratory, Strathroy.

The Hessian fly during the past season has inflicted a considerable loss on farmers in Western Ontario, particularly in the counties of Essex, Elgin, Kent, Middlesex and Lambton. While it is difficult to estimate the financial loss entailed, it may be stated that in some cases the crop has been entirely ruined, necessitating the planting of other grains, while very few fly-infested fields averaged more than ten bushels of grain per acre, and on the lighter soils the yield was reduced to five bushels per acre. This loss is due entirely to the "fly," for in localities where the fly was not present the yield of wheat ran from thirty-five to forty-five bushels per acre. For the past three years repeated warnings have been sent out, telling the farmers of the presence of the insect, and that once a crop was infested nothing could be done to prevent the injury, but in spite of all warnings the custom that prevailed was to sow as early as possible, with the result that conditions so favoured the increase of the pest, that more loss has been entailed this year than for a number of years past. Investigation work has not yet reached that stage where it is possible to give a "fly-free" date to all these localities, but in connection with our experimental work, the progress made toward this end is decidedly satisfactory.

In the fall of 1919 it was noticed that the insect was on the increase, and 1/10 of an acre wheat plots were planted at different dates to ascertain the fly-free date for that year. Careful daily observations were made on these plots until October 5th, when no more flies were observed on the wing. This work was again checked up in the early spring before the middle of April as an infested plant could be more easily determined in the spring. It was found that wheat planted September 18th, was only slightly infested, and a later sowing made September 25th was free. This seems rather remarkable, as the flies were on the wing in small numbers until October 5th. It may be that the female flies live for a short time after their ovaries are "spent," as no oviposition was observed in October. One thing is quite certain, and that is, that no wheat should be sown in August, as an examination in early spring showed that between 70% and 90% of August sown wheat was killed by the fly where no fertilizer was applied. Where fertilizer was applied the injury ran from 30%-50%. A gradual decrease in injury followed the later sowings and an extra sowing put in in October and treated with fertilizer was the most promising of all. The fertilizers used were:—lime only at the rate of 1,000 lbs. per acre, acid phosphate, 200 lbs. per acre, lime and acid phosphate mixed, and no treatment. Infested August sown wheat ran from two to ten flax-seeds to the plant. On May 5th, 1920, the first female fly was observed on the wing in the field. The weather from that date until May 16th was decidedly cool and wet, but emergence was very active May 17th. Under field conditions emergence was practically complete May 21st. No flies were observed on the wing in the field after May 25th. These plots were subsequently harvested, but the infestation was so heavy in all the plots, that the wheat was mowed with a scythe and thrown to chickens; it is doubtful if there was a bushel of grain on the whole experimental field. A similar experiment was duplicated this fall on the same ground. The soil was thoroughly worked, the stubble carefully buried, and the field manured with barn yard manure, reinforced with acid phosphate. The first sowing was made September 15th; second sowing, September 22nd; third sowing, September 29th; fourth sowing, October 5th; last sowing, October 9th. The infestation will be checked up in the spring as other work prevented this from being done this fall. We do know, however, that the first planting is fairly heavily infested.

It is gratifying to mention that the campaign launched the past summer to delay the sowing of wheat as late as possible has met with a fairly generous response. Talking to Mr. Noble, the agricultural representative of Essex Co., I am informed that little if any wheat was planted before the middle of October. In Middlesex Co. some wheat was sown early and all such wheat examined is infested. In Elgin Co. very little wheat was planted before October. Most of my information regarding the sowing of wheat has been obtained from the weekly report of the Ontario Department of Agriculture, Toronto, Ontario. The area sown to wheat this year is less than that last year, and generally speaking planting has been delayed from two to three weeks later than last year. The fine open fall has been perfect for the late planting of wheat, and this may mean a material check on fly increase. How long the flies were on the wing this fall is not known.

Notes on the Stages and Life History of the Insect.

The eggs which are small, long, slender, and of a shining reddish colour, are usually placed in the grooves on the upper surface of the wheat leaf. Sometimes they are placed at the base of the leaf and stem. Eggs hatch in from four to six or seven days, depending on temperature and the moisture content. The maggot on hatching is a bright red colour, and apparently makes its way down between the leaf sheath and stalk through the agency of moisture. In the outside insectary where the moisture content can be controlled, the young maggots died on the surface of the leaf where moisture or dew was withheld, while under normal conditions outside, the larvæ were able to get between the leaf and stem and develop. A maggot may be scratched with a dissecting needle, but no movement is observable, but in the presence of water, it squirms vigorously. For the first few days the young maggot is almost translucent, as feeding progresses the colour changes to a greenish white. The larval stage lasts in the spring about three weeks. Flies were abundant May 17th, and the first flaxseed was discovered June 7th. In the fall conditions vary, some larvæ may winter over in small numbers as maggots, but the majority as flax-seeds. In the fall practically all the maggots and flax-seeds are located at the base of the plants and around the roots, but in the spring the larvæ usually change to the "flax-seed" stage at the first or second joint above ground. At the time wheat is starting to head ninety-five per cent. of the maggots will have changed to the flax-seed state. The injury is too well known to need description. The killing of the tissue of the stem interferes with the passage of food material, and the plant is consequently starved, and the degree of infestation governs whether the plant will be killed outright, or produce a dwarfed head of shrivelled grain.

Means of Control. From the few parasites that were obtained this year, it would indicate that other means of control are necessary. The destruction of all volunteer wheat, the careful ploughing under of all infested stubble as soon after the harvest as possible, rolling the ground as firm as possible, thorough preparation of the seed-bed, generous application of fertilizers, the avoidance of planting wheat after wheat, and delaying the planting of wheat as late as possible to insure sufficient growth before winter, will materially check the ravages of this pest. As there are two broods, one in the spring, and another in the fall, to insure effective control farmers should realize that indiscriminate dates of planting will not keep this pest in check, and a community should agree among themselves to plant during a certain stipulated week, because an infested field in the fall is a menace to late planted fields in the spring.

INSECTS OF THE SEASON 1920.

H. F. Hudson,

Dominion Entomological Laboratory, Strathroy

The season of 1920 has been remarkable for the exceptionally heavy yields of all crops, truck, orchard, and farm alike. The season has been somewhat cool, but there has been ample moisture for all crops. In spite of the fact that it has been frequently stated that the average yield of farm crops has been heavier than the average for the last twenty-five years, insect pests have in some cases materially reduced the yield. This is particularly noticeable in the wheat yield due to the ravages of the Hessian Fly (*Mayetiola destructor*). Fields in Essex Co. were in some cases completely destroyed, necessitating the planting of other crops; in Kent Co. the injury was not so noticeable although frequently the yield has only been from nine to ten bushels per acre; in Middlesex Co. in the vicinity of Ekfrid Twp. cattle were turned in to pasture the wheat crop, while the average yield in Caradoc Twp. in infested fields varied from five to ten bushels per acre. In Elgin and Lambton Counties similar conditions prevailed. The appearance of the European Corn Borer (*Pyrausta nubilalis*) in Western Ontario has added another important insect to our already long list of field crop insects. While considerable data have been gathered on the ravages of this pest, the extent of injury and possible means of prevention, a sufficient study has not been made to recommend suitable control measures. It would appear that cutting the corn low, just at or a little below the surface, feeding the stalks up early, or better ensiling them, combined with the destruction of such plants as ragweed (*Artemesia trifida*), barn yard grass (*Panicum crusgalli*), and other thick-stemmed plants and weeds would materially reduce the ravages of this pest.

The Wheat Wireworm (*Agriotes mancus*) has been responsible for con-considerable injury to the oat crop in the vicinity of St. Mary's, Ontario. Information as to the prevalence of this pest was not received in time for us to make an investigation as to the extent of the outbreak, but from reports received from my colleague Mr. J. A. Flock, who was requested to look over the situation, there can be little doubt that the crop yield was considerably reduced. The potato beetle is still with us, and with an extremely heavy first brood indications pointed to serious injury. However the weather kept cool, and with plenty of rain, a larger yield of tubers was gathered this year than for several years past. Strange as it may seem, in our experimental breeding work on this insect, we were unable to obtain a second brood. The beetles fed for a few days and hibernated. A number of late planted fields were not even sprayed, a rather unusual occurrence.

Cucumber Beetles (*Diabrotica vittata*) were more than usually abundant. They seemed to be fairly easily controlled by dusting when the vines have started to run. I dusted one and one-half acres this year for the beetle, using a mixture of hydrated lime twenty pounds, Paris green one pound. The plants were thoroughly coated and one application seemed to be sufficient.

CABBAGE ROOT MAGGOT. I do not know when I can recall a season when so much damage was done to cabbage, cauliflower, radish and turnip, by the various root maggots. Practically all local early crops of the above vegetables were ruined. Although corrosive sublimate was recommended, I do not know of anyone who tried it.

CUTWORMS were not frequently mentioned as injurious this year, except in old sod. The poisoned bran mixture for the surface-feeding species is so well known that reports of injury are less numerous than formerly.

SEED CORN MAGGOT. This is the first time that I have seen any injury by this pest in Western Ontario. The injury was slight, generally speaking, although it was necessary to replant several corn fields in Harwich Twp., Kent Co. Part of this injury was also due to an unidentified species of elaterid.

CABBAGE WORM. Unusually destructive this year, but easily controlled by using pyrethrum powder.

PARSNIP WEBWORM (*Depressaria heracliana*). A pest of considerable economic importance when seed is required. Very abundant this year.

WARBLE FLY (*Hypoderma bovis*). Undoubtedly this noxious cattle pest is increasing in numbers, and is causing cattle graziers some alarm. Some thirty-eight warbles were extracted from the backs of cattle this summer, but we were unable to secure the adult fly. In contradistinction to general belief that the warbles emerge in early summer, they were still present in small numbers in the cattle in early August.

INSECTS OF THE SEASON IN ONTARIO.

I. Caesar, O. A. C., Guelph, and W. A. Ross, Dominion Entomological Laboratory, Vineland Station, Ont.

Orchard Insects.

THE CODLING MOTH (*Cydia pomonella*). This insect was not nearly so abundant as last year. Low temperatures in June and July caused the adults to appear late, and this, together with the general lower summer temperature, resulted in there being practically only one brood even in the warmer parts of the province. The large percentage of dead young larvæ found in apples in early July would indicate that disease also may have played a considerable part in lessening the amount of injury. In most sections the percentage of "side-worm" injury in sprayed orchards was small.

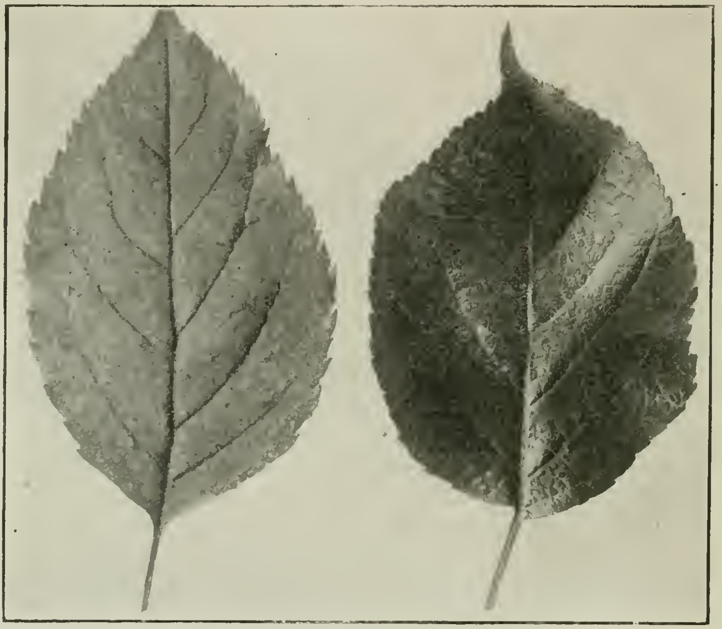
THE SAN JOSÉ SCALE (*Aspidiotus perniciosus*). This well-known pest continues to increase in unsprayed and poorly sprayed orchards. It is worth while noting that in some localities it is being parasitized to an appreciable extent by chalcids.

THE OYSTER-SHELL SCALE (*Lepidosaphes ulmi*). There has been a marked increase of this scale insect in many orchards during the past two or three years.

THE FRUIT TREE LEAF-ROLLER (*Tortrix argyrospila*). This insect is coming into prominence in the vicinity of Newcastle, where from ten to twenty per cent. of the apples in several orchards were injured by it this year. On the other hand, in the Simcoe district, where it used to be so troublesome, it has almost disappeared.

THE GREEN APPLE BUG (*Lygus communis*). This species has been found in the Newcastle district in two orchards attacking apples and pears, and doing considerable damage, especially to pears.

The Fall Canker Worm (*Alsophila pometaria*). The fall canker worm is rapidly increasing in Halton and Wentworth counties. One orchard at Flamborough Centre was almost completely defoliated by it this year. The probability is that many orchards will suffer considerably next year from its depredations.



Apple leaves. On left showing whitening of leaf by sucking nymphs of Rose Leaf-hopper; on right normal leaf.
Life size.

The Rose Leaf Hopper (*Empoa rosae*). This species, which was so prevalent last year, was even more abundant this past season on apple trees throughout the province. In many infested orchards practically all the foliage became mottled and pallid, as a result of the feeding activities of the hopper and much of the fruit, especially in the lower parts of the trees, became specked and dirty with hopper excreta. Fortunately most of this excreta was washed off by rains before picking time.

The Rosy Apple Aphis (*Aphis malifoliae*). This plant louse was very injurious in different parts of the province, and in many orchards a large percentage of the fruit, in the lower and inner parts of the trees, was dwarfed and deformed by its depredations.

Apple Maggot (*Rhagoletis pomonella*). By way of record it should be mentioned that the apple maggot was found this year in Elgin and Huron—two counties from which it had not been reported heretofore.

(Hoplia trifasciata?). Stout scarabaeid beetles of the genus *Hoplia*, probably *H. trifasciata*, occurred in destructive numbers both in 1919 and 1920 in an orchard near Nottawa, Simcoe county. They attacked the blossoms of young Duchess apple trees, and destroyed them almost as quickly as they opened. Wealthy blossoms were also attacked, but to a lesser extent. It seems probable that the beetle came from the woods near by. This is the first time either writer has seen injury from this insect in Ontario.

PISTOL CASE-BEARER (*Coleophora malivorella*). This insect is usually unimportant in Ontario, especially in the colder parts, being much less abundant than the Cigar Case-Bearer. This year, however, it was very prevalent on apple foliage at Newcastle.

THE OAK LEAF-BUG (*Lygus quercalbae*). This mirid, which normally breeds and feeds on oak, attacked the fruit of peaches in late June at St. Davids, and rendered a large percentage unfit for sale. Only orchards close to oak trees were affected.

THE MULLEIN PLANT BUG (*Campylomma verbasci*). This small plant bug was again found attacking apples in two large orchards at Simcoe. It was present, however, in comparatively small numbers, and caused no serious injury.

THE PEAR PSYLLA (*Psylla pyricola*). The cool summer and the comparative scarcity of insect enemies were apparently very favorable for the development of this insect and it became unusually abundant in the Niagara, Burlington, Bowmanville and Newcastle districts. At Burlington practically all the Bartlett pears were stained by the honey-dew fungus to such an extent that they had to be washed before the buyers would accept them. The psylla was very scarce at Guelph.

THE PEAR AND CHERRY SLUG (*Eriocampoides limacina*). We are glad to report that this insect, which was so destructive in 1918-19, was comparatively scarce this year. In a few neglected cherry orchards some trees were partially defoliated, but in most fruit sections the slug caused no appreciable damage.

GREEN FRUIT WORMS (*Graptolitha sp.*). A species of *Graptolitha* was quite abundant on peaches in the Vineland district. However, on account of the abundance of fruit the loss caused by this insect was not felt after the injured peaches had been thinned out.

PEACH TREE BORER (*Sanninoidea exitiosa*). According to complaints received from growers, and reports from the Provincial Inspector and his staff, this borer was responsible for more injury than usual in the Niagara district.

FRUIT-TREE BARK-BEETLE (*Eccoptogaster rugulosus*). Several complaints of bark-beetle injury to peach trees were received from the Niagara district and Kent county.

ROSE CHAFER (*Macrodactylus subspinosus*). Local outbreaks of this pest occurred at Simcoe, St. Catharines and Fenwick. Grapes, peaches, apples and other plants were attacked and in some cases seriously injured.

BLACK CHERRY APHIS (*Mysus cerasi*). This plant louse was very abundant on, and injurious to sweet cherry trees in the Niagara fruit belt.

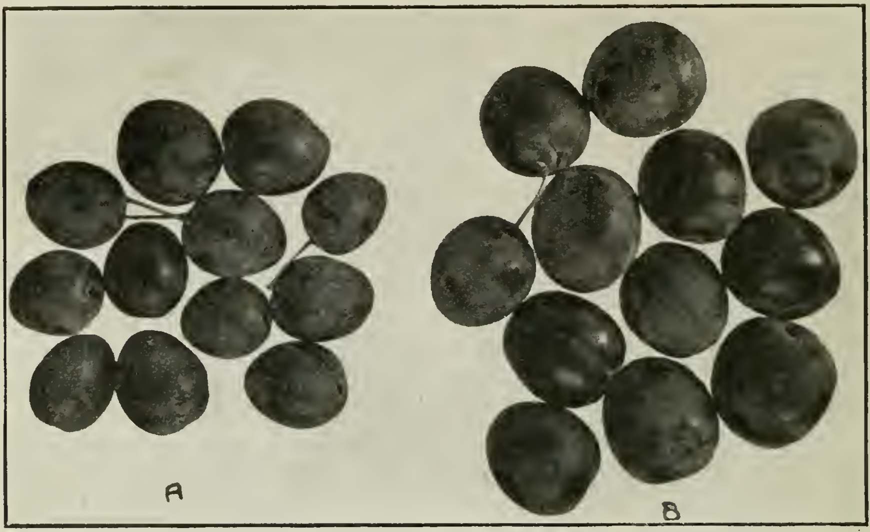
PLUM SPIDER-MITE (*Tetranychus pilosus*). In the Niagara district plum trees, unsprayed or sprayed with Bordeaux mixture, were heavily infested by this species. On badly attacked trees the mite not only made the foliage pallid and sickly in appearance, and checked the growth of the trees, but it also dwarfed the fruit and retarded its ripening.

By weighing and measuring lots of plums from infested and uninfested trees we secured the following data:

Loss of weight due to mite infestation—Gueii 41.5%, Pond Seedling 20.6%, Lombard 27.3%, Reine Claude 28.7%.

Loss in size—Gueii 40.3%, Pond Seedling 24.3%, Lombard 19.1%, Reine Claude 24.8%.

Our experiments this year proved again that this pest can readily be controlled by spraying with Lime Sulphur.



(A) Dwarfed plums from trees infested with plum spider mites.
(B) Normal fruit from uninfested trees.
Life size.

THE MEALY PLUM LOUSE (*Hyalopterus arundinis*). In early summer many plum trees in the Niagara district became heavily infested with this species and in several orchards spraying had to be resorted to.

Grape and Small Fruit Insects.

BLACKBERRY LEAF-MINER (*Metallus bethunei*). This miner was again injurious to blackberries in the Collingwood, Oakville, Burlington and Niagara districts. In a number of fields almost every leaf was badly mined.

The great abundance of an Ichneumon parasite this fall will probably result in lessened injury next year. Egg parasites were also present.

The life history of the miner has been worked out and a promising method of control discovered. Further experiments, however, are necessary to discover whether there are any unforeseen difficulties in applying the remedy.

STRAWBERRY WEEVIL (*Anthonomus signatus*). This weevil was again injurious in some strawberry patches in the Niagara district.

THE RED-HEADED FLEA-BEETLE (*Systena frontalis*). This large, black flea-beetle was found attacking the foliage of black currants, raspberries, apples and several kinds of weeds at Mountain in September.

THE STRAWBERRY ROOT-WORM (*Typophorus canellus*). Here and there in strawberry patches in the Niagara and Burlington districts, leaves riddled by this flea-beetle were very conspicuous. The flea-beetle was most abundant in old patches, but even in them caused no serious damage.

CURRANT STEM-GIRDLER (*Janus integer*). The work of this saw-fly was conspicuous in a number of currant patches in the Niagara district.

RASPBERRY SAW-FLY (*Monophadnus rubi*). The spiny, green larvæ of this saw-fly were present in greater or less numbers in practically all raspberry patches throughout the Niagara district.

GRAPE LEAF-HOPPER (*Typhlocyba comes*). This hopper was present in injurious numbers in several Niagara vineyards.

THE ROSE SCALE (*Aulacaspis rosae*). This scale insect was unusually common on raspberries in some parts of the Niagara district.

THE TREE CRICKET (*Oecanthus nigricornis*). Quite a few complaints were received last spring regarding injury to raspberry canes by this species.

Vegetable Insects.

CUTWORMS. According to reports received from different parts of the province, cutworms were unusually destructive in May and June to tomatoes, corn and cabbage.

THE IMPORTED CABBAGE WORM (*Pieris rapae*). This well-known pest was not nearly so abundant as last year, although as usual it was present in fairly large numbers toward the end of the season.

THE CABBAGE MAGGOT (*Phorbia brassicae*). This destructive insect was very common and very injurious in many localities to early cabbage, cauliflower, early turnips and radishes. In New Ontario it seems to be even a greater pest than in old Ontario, and sometimes does serious damage there to field turnips.

We are pleased to report that the corrosive sublimate remedy is coming into quite general use. In all cases where the treatment was made according to the usual directions, excellent results were secured this year.

THE ONION MAGGOT (*Hylemyia antiqua*). Here and there throughout the province this maggot caused considerable loss.

THE ONION THRIP (*Thrips tabaci*). Weather conditions were unfavorable for the development of this insect, and as a result no injury was done by it to the onion crop.

THE COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*). Was remarkably scarce in the Niagara and some other districts.

POTATO APHIDS. In July some potato patches in the vicinity of Grimsby became very heavily infested with the spinach aphis—*Myzus persicae*. This pest was readily brought under control by spraying with Black-leaf-40 in combination with Bordeaux mixture.

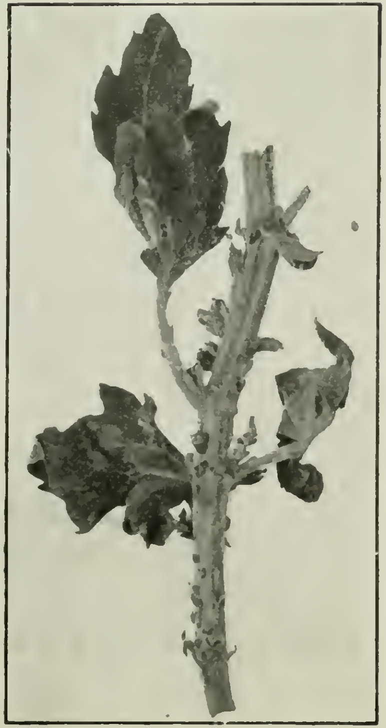
THE DESTRUCTIVE PEA APHIS (*Macrosiphum pisi*). This plant louse was again very injurious to canning factory peas. In Norfolk county it was estimated that it cut down the yield of peas to about one-third of a crop. For the first time in the experience of the Dominion Canners at Simcoe, early peas were severely attacked by the aphis.

BORING CATERPILLARS. Many specimens of the common stalk-borer (*Papaipema nitela*) and of the burdock borer (*P. cataphracta*) were submitted for identification by growers who mistook these caterpillars for the European Corn Borer. The common stalk-borer was found in corn and potatoes, and the other species in corn and cultivated asters.

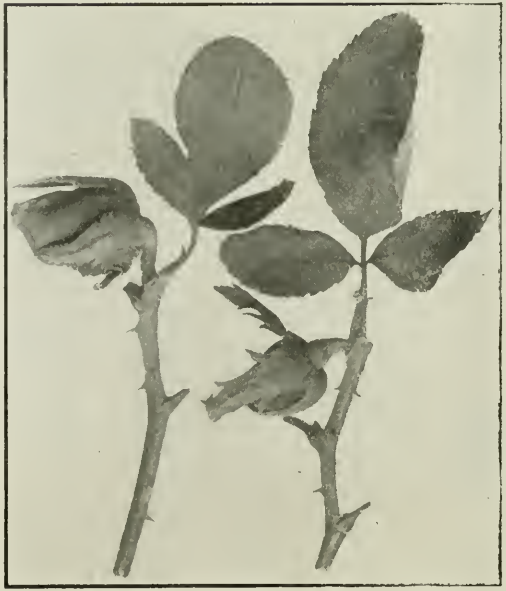
STEM-BORING WIREWORMS. In a tomato field near Vineland, about 65% of the plants were infested by two species of stem-boring wireworms, (*Agriotes mancus* and *Melanotus sp.*). In some instances the larvæ bored five to five and one-half inches up the stem. About 20% of the tomatoes were so seriously injured that they were pulled out. The infested plants left in the field managed to survive, but made very little growth.

PARSNIP WEB WORM (*Depressaria heracliana*). The greenish-yellow caterpillars of this species were abundant as usual on parsnips grown for seed.

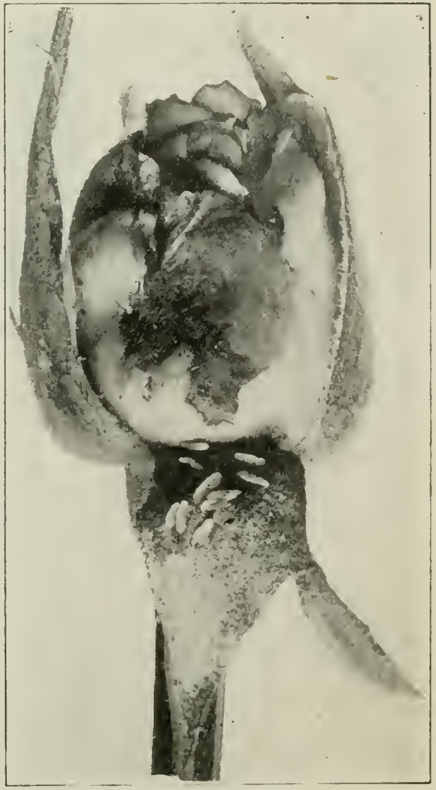
EUROPEAN CORN BORER (*Pyrausta nubilalis*). The outbreak in Southern Ontario of this undesirable alien is discussed elsewhere.



Stem of chrysanthemum showing galls formed by larvae of chrysanthemum Midge.
Life size.



Rose Bud stems distorted by larvae
Life size.



Injured rose bud opened to show Rose Midge maggots feeding within.
(Enlarged three times.)

THE STRIPED CUCUMBER BEETLE (*Diabrotica vittata*), THE SQUASH BUG (*Anasa tristis*), ASPARAGUS BEETLES (*Crioceris asparagi and C. duodecimpunctata*). Except in a few localities these insects were rather scarce.

POTATO LEAF HOPPER (*Empoasca mali*). This species, although not nearly so abundant as it was last year, was present in quite large numbers, and in some localities a considerable amount of "hopper-burn" developed on the potatoes.

Experiments conducted at Vineland indicated that this year, unlike last year, weather conditions played little or no part in producing potato "leaf-burn" and that all or practically all the "burning" was caused by hoppers.

FLEA BEETLES. The Pale-Striped Flea-Beetle (*Systena taeniata*) was very prevalent on potatoes, tomatoes, beans, egg plants, peppers, and asters.

Early in the season tomato plants in parts of the Niagara district were badly damaged by the potato flea-beetle (*Epitrix cucumeris*).

Insects Injurious to Field Crops.

WIREWORMS AND WHITE GRUBS. These well-known pests were as usual the cause of considerable damage to various crops.

GRASSHOPPERS. Outbreaks of grasshoppers occurred in Huntsville and Waterdown districts and in several other parts of the province. At Thedford, celery grown near waste land was badly injured. Greater loss from grasshoppers was prevented by copious showers in July and August.

THE HESSIAN FLY (*Mayetiola destructor*). The outbreak of Hessian fly is discussed elsewhere.

THE GRASS THRIPS (*Anaphothrips striatus*). Specimens of oat heads with characteristic thrip injury were received from central Ontario with the report that a considerable percentage of the oat plants were similarly affected.

GREATER WHEAT-STEM MAGGOT (*Meromyza americana*). In Manitoulin Island, according to the Agricultural Representative, ten per cent. of the heads of spring wheat in some fields was destroyed by this maggot.

CHINCH BUG (*Blissus leucopterus*). In referring to the outbreak of chinch bug in Lincoln county last year, we expressed the hope that fall rains and the winter would reduce the hibernating adults to insignificant proportions. Our hope was more than realized, because this season it was practically impossible to find a bug in the infested district.

COTTONY GRASS SCALE (*Eriopeltis festucae*). This scale, which we believe has not been reported from Ontario before, was very abundant on grass at Coniston in Northern Ontario.

Greenhouse Insects.

THE CHRYSANTHEMUM MIDGE (*Diarthronomyia hypogaea*). We regret to report that the chrysanthemum midge appears to be pretty well established throughout the province. It is present in greenhouses in St. Catharines, Toronto, Kitchener, London, Chatham, Midland and Ottawa, and there is no doubt that a survey of Ontario greenhouses would show it to be established in other places. It would appear from the manner in which the midge has spread, that in a comparatively short time practically all our growers of chrysanthemums will have to contend with it.

It is worth while noting that Mr. W. W. Gammage, London, claims that he has practically eliminated the midge by spraying with the following mixture .

Hammond's Thrift Juice	1 pt.
Nicotine or Nicofume	1½ ozs.
Water	5 gals.

This spray was applied two or three times a week for a period of five weeks.

THE ROSE MIDGE (*Dasyneura rhodophaga*). Discussed elsewhere.

THE CYCLAMEN MITE (*Tarsonemus pallidus*). In a St. Catharines greenhouse, somewhere in the neighbourhood of three thousand cyclamens were so badly damaged by this species that they had to be discarded. The florist estimated that the mite had caused a loss of approximately $2,000.00.

THE CURLED ROSE SLUG (*Emphytus cinctipes*). This fall there was a minor outbreak of this slug in greenhouses at Grimsby.

THE TARNISHED PLANT BUG (*Lygus pratensis*). This notorious pest was apparently not so abundant as usual; however in some districts it caused a considerable amount of damage, especially to asters. Miss Olfield of Grimsby, reports that hydrated lime, which we advised her to try, when dusted on asters was quite effective as a repellant.

THE GREENHOUSE LEAF TYER (*Phlyctaenia ferrugalis*). Judging by the number of complaints received from florists, this pest was more injurious than usual to chrysanthemums, cinerarias and other plants.

Insects Injurious to Domestic Animals.

THE WARBLE FLY (*Hypoderma bovis*). Complaints of "gadding" of cattle caused by this fly were received from Lambton, Oxford, Lincoln, Norfolk, Perth, Huron and Peel counties. "Gadding" was reported as early as June 12th and 15th.

Insects Injurious to Forest and Shade Trees and Shrubs.

BIRCH LEAF SKELETONIZER (*Bucculatrix canadensisella*). In September birch trees along the C.P.R. from Ottawa to Napanee looked as if their foliage had been blighted, so severely had the leaves been attacked by the tiny larvæ of this species.

WHITE OAK CATERPILLARS. Almost every oak with the white oak type of leaf along the C.P.R. from a few miles east of Napanee to a few miles west of Belleville had its foliage destroyed by some caterpillar. The injury was first noticed in August, and the leaves were off early in September. Oaks, like red oak, with sharp pointed leaves were apparently not attacked. The writer did not see the caterpillars, but received about a score of pupæ collected from underneath one of the trees, and hopes to rear the adults from them next year.

TETRANYCHUS BICOLOR. Ornamental oak trees in different parts of the Niagara district were heavily infested by this mite.

SNOW-BALL APHIDS (*Aphis viburnicola and Aphis rumicis*). These insects as usual were abundant and caused typical curling of the foliage and the defective development of the bloom. Tests made in 1919 and 1920 demonstrated that they can be controlled easily by spraying with Black-leaf-40 and soap just as the buds are commencing to burst. Heavy and thorough spraying is necessary. The difference between the bloom and foliage on sprayed and unsprayed bushes is very striking.

WEDNESDAY EVENING.

In the evening a meeting, in the form of a smoker, was held in the men's sitting-room of the College Residence, at which Prof. Lochhead acted as chairman.

Dr. E. P. Felt, State Entomologist of New York, read a paper entitled "Some of the Broader Aspects of Insect Control," in which much interest was shown by the audience in the discussion that followed. The second event of the evening was the reading of the continuation of Mr. Morris' delightful "Life History of a Hobby Horse." Mr. Morris captivated his audience by the charm of his language and delivery, and the fine scholarship and whimsical humour which characterised his address.

Dr. Felt's paper appears below, while Mr. Morris's "Hobby Horse" which was commenced in our Report for 1918, is being continued in the "Canadian Entomologist," in the series of papers on "Popular and Practical Entomology."

The meeting was enlivened by several musical selections played by the College Orchestra.

SOME OF THE BROADER ASPECTS OF INSECT CONTROL.

E. R. Felt, State Entomologist of New York.

This is not so much a contribution as a general consideration of the primary function of the economic entomologist, namely, the more effective control of injurious insects.

Insect abundance depends upon a certain prolificacy, sufficient suitable food, favorable climatic conditions and relative freedom from the operation of checks of one kind or another.

Very limited reproduction prevents an insect from becoming economically important and such species therefore usually escape notice.

A sufficiency of suitable food is necessary, and we desire in this connection to call attention to the adjective, suitable, because food habit limitations are often more real than apparent. There is need of distinguishing between plants upon which a species thrives and those upon which it can just maintain itself, or where this is true only of some of the older larval stages. In the case of borers there is a marked economic difference between real food plants and "shelter" plants.

Although some insects can withstand great extremes, it is a fact that most economic species are greatly affected by climatic conditions, and some respond so readily that it is difficult to recognize the cause for the difference in behaviour.

Controlling factors, aside from climate noted above, are susceptible of modifications in some cases and deserve most careful consideration.

The past twenty-five years have witnessed notable improvements in both spraying outfits and insecticides. Compare for example, the hand sprayers and blowers of the earlier days with the large power spraying outfits and dusters of the present time; and recall the development and extensive use of arsenate of lead, lime sulphur wash and nicotine sulphate, all important and extremely valuable additions to the pharmacopœia of the oconomic entomologist.

It is quite within possibilities that the airplane may be used for distributing poisons over forest areas, and perhaps extensive orchards, and investigations of insectides indicate continued progress in the search for and development of materials which can be used for the better control of insect pests.

The profound influence of climate must be taken into account. It is well known that cool, backward weather conditions in the spring greatly reduce the numbers of certain insects, for example, the first generation of the San José scale and the elm leaf beetle; and in the case of the former, adverse winter conditions may destroy a very large proportion of the hibernating females. Cold, wet rains are fatal to many insects, and, on the other hand, unusually high temperatures and low humidity have their effect, and various combinations of this character exert marked changes upon insect abundance from season to season. It sometimes happens that exceptionally good growing weather appears to be the main reason why plants outgrow insect attack and as a consequence there is very little serious injury.

The concentration of crops following local specialization is likely to result in unusual outbreaks. This is very marked in orchard regions, vineyard areas and wheat growing sections, and is the main justification for modifying agricultural practices by the rotation of crops, variations in the time of planting and other changes.

The United States is spending many thousand dollars annually in the support of a quarantine system which logically should be extended to every port if it is to accomplish its purpose namely, the exclusion of dangerously injurious insects and plant diseases. Everyone acquainted with this line of work must realize that occasionally some pest may escape the watchful eye of the inspector, and perhaps establish itself in a limited section. Furthermore, there is always the possibility that an insect, harmless in its native surroundings may develop destructive habits in a new environment.

Quarantine should logically be supplemented by provisions for the early detection and elimination of restricted infestations. It may be remembered that the gypsy moth maintained itself in America practically unnoticed for twenty-two years, and the European corn borer for some ten years. These cases and others of a like nature suggest the need of more efficient methods for the early detection of unusual and potentially injurious species. There should be wider appreciation of the important part played by insects, and the general public should be systematically encouraged to report anything unusual, because this is an economical and apparently a very effective method of bringing such developments to light.

It is admittedly difficult to forecast the probable economic status of a recently introduced insect and partly for this reason there has usually been an investigation of the species before a comprehensive effort for extermination was begun and, as a consequence, such insects as the gypsy moth, the San Jose scale and the cotton boll weevil, to mention only a few, spread rapidly and golden opportunities were lost, not necessarily through the fault of any individual or group of individuals but because methods had not been developed and possibilities demonstrated to such an extent as to make any other course practicable under the conditions then obtaining. The experience of the last twenty-five years has laid an excellent foundation for the adoption of a more comprehensive and effective policy which might reasonably be expected to eventuate in the better handling of problems in connection with recently introduced insects. The conditions are sufficiently similar in these projects that it would seem advisable to create an organization specially qualified by training and experience to handle such propositions, and to make provision in the annual appropriations for a reasonable sum to be available in the case of emergencies, which latter are never anticipated and should not be compelled to await the relatively slow process of legislative investigation and approval. It should at least be possible to adopt at once a vigorous policy of suppression and control designed to keep the pest within certain bounds until investigations and field experience—both are important—develop a fund of information sufficient to ensure a satisfactory disposal of the case. The bean ladybird situation in Alabama with no Federal or State funds available is a striking instance of unpreparedness. An incipient infestation compels immediate, though somewhat wasteful, action if an insect is to be eradicated. Time, tide and insects wait for no man. The drastic and prompt extermination of the Colorado beetle infestations in both England and Germany are cases of this character.

The utilization of natural enemies of one kind or another for the control of insects should be advocated wherever practicable. There is no question as to the great value of many birds in checking leaf-eating caterpillars and the better protection of bird life is one of the most promising methods of safeguarding forest areas from insect depredations.

The importation of the Australian lady beetle and its speedy control of the cottony cushion scale gave a great impetus to the utilization of natural enemies. The collection and redistribution of native hibernating lady beetles on the Pacific slope is a similar method of making use of beneficial insects.

Most of our recently introduced pests are comparatively insignificant forms in their native countries, and are there controlled presumably very largely by beneficial insects. The extended and systematic introduction of natural enemies of both the gypsy and brown tail moths has resulted in a very thorough study of these insects and eventuated in a reasonable expectation of control through these agencies. The present search for the natural enemies of the green Japanese beetle and of the European corn borer are later attempts along the same line.

There is also the possibility of utilizing native beneficial insects. Doctor Pierce made an extensive study of the parasites of native weevils and has demonstrated the possibility of concentrating them upon the introduced cotton boll weevil. Similar work has been undertaken in connection with the European corn borer. The probabilities are that native species will largely retain their characteristics when attacking introduced forms as was the case with the extraordinary abundance of Trichogramma in the eggs of the European corn borer in 1919, and its relative great scarcity the past season. The possibilities along this line are well worthy of most careful attention.

The marked reduction in the numbers of a certain insect may have a much greater effect than is commonly supposed. The studies of bark beetles by Doctor Hopkins have shown the possibility of securing very efficient control by simply reducing their numbers, in some instances by seventy-five per cent, to such an extent that those remaining would be unable to overcome the resistance of the tree. This of course applies to enemies of living trees and presupposes that a minimum amount of injury must be inflicted or the attack can be successfully resisted, a condition which accords very closely with the facts.

The work of W. F. Fisk upon the Tsetse fly has shown that it is only necessary to reduce the infestation by this pest to moderate limits in order to secure very satisfactory freedom from attack. The studies of Roubaud upon malaria in France indicate intimate connection between this disease and the numbers of mosquitoes per host. The author suggests what he calls animal prophylaxis, that is the introduction of enough cattle to attract the insects and thus to protect man to a large extent. Both of these cases are simply forms of percentage reduction.

Somewhat similar conditions prevail when the farmer relies upon good culture to prevent insect injury, since vigorous growth frequently enables the plant to successfully resist or outgrow insect attack. The late Professor F. M. Webster was a strong believer in good cultivation, and on more than one occasion has expressed his faith in such treatment as a means of preventing insect injury.

There is much data along this line and yet present day entomologists content themselves largely with alluding in general terms to the value of good agriculture and sometimes unduly emphasize direct remedial measures, whereas in certain cases there should be emphasis upon the former rather than the latter.

Let us turn for a moment to the early history of the wheat midge and the Hessian fly in this country. Both insects caused huge losses over large areas, and owing to practical limitations direct repressive measures were impossible. These insects are now largely controlled by a modified agriculture, though it has taken years to demonstrate the feasibility of such measures. We have in the European corn-borer an insect which apparently must be controlled by modifications in agricultural methods, and we believe that in this particular case there is a splendid opportunity for economic entomologists to demonstrate in a most convincing manner possibilities in this direction and on a sufficiently large scale, so that there can be no question as to the validity of the findings.

It is very probable that the efficiency of quarantine measures is materially increased by the fact that ordinarily the chances are against a small infestation surviving, since a few insects are very liable to succumb to attacks by birds, predaceous and parasitic insects, or to the effects of untoward climatic conditions, or unfavorable food. This very probably occurs in many sections and escapes record because the entire incident is on such a small scale. It may be recalled in this connection that five living nun moths were taken in Brooklyn, N.Y., in 1901, and yet the insect does not appear to have become established.

The potency of a more or less systematic reduction in numbers is well illustrated in certain of the larger animals. We refer to these forms because the process is more easily seen and understood. It should also be noted that in not a few instances the supposedly impossible has been brought about by the irresponsible urge of self-interest, and not through carefully directed co-operative efforts for the attainment of a definite aim. One of the most striking instances of this kind is the extermination of the passenger pigeon, a bird at one time so extremely abundant that three carloads a day were shipped from one small Michigan town for a period of forty days. The large herds of buffalo were saved from extinction at the last moment through the intervention of naturalists interested in preserving the wild life of the country. The depleted salmon, shad and herring fisheries, the necessity of protecting both the oyster and the lobster and the great scarcity of certain whales have been brought about by similar agencies, though it would seem as if inhabitants of the water would have a better chance of escape from a persistent human enemy than would be the case with terrestrial forms. It is true that these unfortunate conditions have resulted through specific peculiarities or limitations which have made attack at certain points particularly detrimental, such as killing birds when migrating or in their nesting retreats, the wholesale catching of spawning shad or salmon and the depletion of oyster beds. Those dependent in large measure for their living upon these various forms could not believe that the natural prolificacy of the various species would not offset almost any attack by human or other agencies. Have we reason for believing that similar conditions may not exist among invertebrates, especially insects, and particularly those species considered injurious or destructive ?

It follows from the above that the mere occurrence of immense numbers by no means indicates impossibility of control or extermination.

Secondly, it would appear that relatively minor changes in environment or attacks limited to comparatively restricted areas might accomplish the apparently impossible.

Thirdly, although there were probably in the case of the larger animals enumerated above, exceptional individuals which under certain conditions varied widely from the normal habit, these departures were not sufficiently marked or numerous to save the species from extinction.

The possibilities of extermination demand more than a passing notice. The layman is inclined to approach the subject with an easy confidence, unembarassed by experience, while the expert, oppressed with the numerous possibilities of exceptional behavior may conclude that nothing short of absolutely destroying all life in the infested area will accomplish the desired results. There is a possibility that the truth lies midway between these extremes.

Those familiar with the early efforts of the State of Massachusetts to exterminate the gypsy moth, will recall that attempts were made to destroy much of the vegetation and great attention was given to killing the eggs and a little later, larvæ. It required more than ten years experience to show that a fairly speedy elimination of the insect was possible without wholesale destruction of the vegetation, providing advantage was taken of the feeding limitations of the species. The efficacy of these methods has been repeatedly demonstrated on relatively large though restricted infestations.

The State Plant Board of Florida has undertaken a very similar piece of work and is exterminating an isolated infestation of the sweet potato weevil by the application of modified agricultural methods and the elimination of conditions favorable to the existence of the insect, and although this work has been in progress for less than three years, the speaker has been informed by Plant Commissioner Newell that the inspectors hope and are confident that 85 per cent. of the previously infested farms will be found free from weevil this fall and the possibilities are that portions of the infested tract may be freed from restrictions another season. It is true that the wingless sweet potato weevil with its closely restricted food habits offers exceptionally favorable opportunity for the demonstration of such measures and yet the present partial success of the undertaking is striking evidence of the soundness of the policy and by no means proves its inapplicability to insects well provided with wings and possessing more general food habits.

The attack along all lines upon the green Japanese beetle infestation in New Jersey will soon disclose the possibilities of both control and eradication in the case of a very difficult insect, though it should be remembered that the really early work against the gypsy moth appeared relatively hopeless and that the really efficient methods were developed only after years of study and practical experience.

The attempted eradication of the pink boll weevil in the south affords another opportunity of demonstrating possibilities along this line.

The systematic destruction of the ermine moth in nursery centers is relatively easy and is a most practical method of preventing another potentially serious pest becoming established in this country.

The progressive extermination of the cattle tick from nearly 500,000 square miles of territory and the consequent elimination from this area of a very destructive infection is along the same line though outside the usually accepted bounds of entomology. Gratifying progress has been made in demonstrating methods of controlling the Rocky Mountain spotted fever tick, a carrier of deadly human infection.

The mere fact that a proposition is a large one does not make it impossible or impracticable in these days of excellent organization and unsurpassed publicity. Both are exceedingly important in the development of any large undertaking, be it scientific or commercial. There is no reason why advantages demonstrated in other branches of human activity, may not be appropriated for the better control of insect pests, and it is gratifying to know that there is a distinct trend along these lines.

Within a year an attempt to exterminate the cotton boll weevil has been proposed in all seriousness, and while the undertaking is a gigantic one and involves an organization extending over a group of large states with provision for financing one of the most important crops of the country, and a profound change in the agriculture of the infested section for at least one season, present day developments prohibit our classing this as impossible though the entire proposition should be studied most carefully from all angles before any attempt is made to put the plan into execution.

The repressive work in connection with the gypsy moth in New England is the outcome of sound policy. It has been admirably administered for a series of years. This destructive pest has been well controlled and in certain large areas exterminated under conditions as adverse as any obtaining in the earlier days when the Commonwealth of Massachusetts entered the lists alone against this insect. The failure to obtain appropriations proportionate to the increased costs of the last few years and the recent discovery of the insect in several areas remote from the main infested section will shortly compel a decision in regard to this pest, and incidentally the verdict is bound to affect our attitude toward similar problems. It is only necessary to turn to the recorded discussion of the 1919 session of the American Association of Economic Entomologists to find a confident statement to the effect that this insect even now could be exterminated from America if sufficient funds were available. This utterance is the matured conviction of a man qualified by years of practical experience to express an opinion regarding this insect.

The agricultural interests of this country are confronted by grave problems along many lines and they rightly look to the entomologists for the solution of those relating to insects. Among the most urgent are those in connection with the exclusion and control of introduced or recently established insect pests. Quarantines must be effective or we may expect in the near future a series of introductions which will be followed by extensive depredations, and control of the latter must be prompt and effective if golden opportunities are seized. The only practical solution is to recognize the seriousness of the situation and so far as possible adopt adequate measures. There is no peculiar merit in large scale operations unless they are absolutely justified by conditions and in some cases in the past it would seem as though the work had not been planned and executed on a sufficiently extended scale to warrant a reasonable hope of success. Such projects are not only possible but entirely feasible if a careful, though tentative, plan is presented and the preparation for the execution of the undertaking be advanced by means of a well directed educational campaign. This latter is necessary in any large project, otherwise it is impossible to secure the essential co-operation. It is the speaker's opinion that we have not yet reached the practical limits in large scale repressive work, a type of activity which appears to be in its infancy and one, in the speaker's judgment, as worthy of recognition and development as the commonly, more highly regarded, investigative activities.

THURSDAY MORNING.

The session was commenced with the election of the officers for the ensuing year, the results of which are given on page 6.

The remainder of the morning was occupied by papers and discussion on the European Corn-borer in Ontario.

At the close of the discussion it was moved by Professor Caesar, seconded by Mr. Crawford. that the thanks of the Society be extended to Dr. Howard for sending Messrs. Walton and Worthley to the meeting. Carried.

THURSDAY AFTERNOON.

Before proceeding with the reading of papers the following resolution was moved by Professor Lochhead and seconded by Professor Caesar, viz., "That the Society learns with regret that the Rev. Dr. Bethune is retiring from his Professorship in the Ontario Agricultural College on account of advancing years. It is pleased to know, however, that the Government has seen fit to allow him a superannuation allowance on account of long and prominent service as Entomologist and Professor.

"The Society cannot permit the occasion of Dr. Bethune's retirement from active work to pass without an expression of appreciation of his long and valued services on behalf of Entomology. It remembers that Dr. Bethune was one of the prime movers in the founding of the Entomological Society of Ontario, fifty-eight years ago. It remembers, also, that he acted for many years as Editor of the "Canadian Entomologist" and during this period the "Canadian Entomologist" became recognized as one of the best entomological magazines on this continent. It remembers also his long service as Professor of Entomology in the Ontario Agricultural College and his wide influence on the many young men who have been his students, many now occupying high positions.

"The Society desires, therefore, at this time, to place on record its high appreciation of Dr. Bethune's long and unselfish service to Entomology, especially in connection with the origin and development of this Society, to extend to him its best wishes for many happy years in his well-earned retirement, and to hope that he will continue to give the Society the benefit of his long experience."

The motion was spoken to by Messrs. Criddle and Baker. Carried.

It was then moved by Mr. Criddle, seconded by Mr. Morris, "That a telegram be sent to Dr. Fyles offering the greetings of the Society." Carried.

It was also moved by Mr. Morris, seconded by Mr. Criddle, "That this meeting express to President Reynolds its appreciation of the courtesy shown by himself and various officers of the Ontario Agricultural College to the Entomological Society of Ontario during its present session at the College." Carried.

FURTHER DATA ON PHORBIA BRASSICAE.

L. CAESAR, O. A. C., GUELPH.

1. Numerous tests made not only by the writer and his assistants, but also by Gibson, Brittain, and Treherne, have proven beyond question that corrosive sublimate in solution will control the cabbage maggot both on cabbage and cauliflower. Many growers, largely due to the influence of Mr. A. H. MacLennan, the vegetable specialist, and his predecessor Mr. S. Johnston, have used this substance on their plots for several years with excellent results: so that it is now long past the experimental stage.

2. Our own experiments in 1919 and 1920 have shown that this substance will also control the radish maggot. Two applications are all that a grower can afford to give to radishes because they are such a low-priced crop that more than two would make the growing of them unprofitable. To treat radishes successfully they must be grown in rows, not broadcast

3. Our experience with creosote clay has not been satisfactory. Some of the compound was made by ourselves, using air-slaked lime instead of clay, and some was obtained from Nova Scotia. On radishes it failed to control the maggot, and on half the cabbages treated once it so stunted the plants that we dare not repeat the treatment. The other half showed very little difference from those treated with corrosive sublimate. I have not been able to make sure whether the injured plants were treated with our own or Brittain's mixture. Therefore the substance should be retested.

4, Judging from results on radishes—all of which were pulled, washed and carefully examined—a strength of 1 to 1,000 (1 oz. to 6¼ imperial gallons) was considerably superior to 1 to 1,600 (1 oz. to 10 gallons) but not much superior to 1 to 1,280 (1 oz. to 8 gallons). As radishes would appear to be well suited for testing the most satisfactory strength of corrosive sublimate to use against *Phorbia brassicae,* I feel like recommending our own growers to use 1 to 1,280 (1 oz. to 8 gallons).

5. Some work was done with cabbage seed beds, this indicated that the corrosive sublimate was satisfactory for them also; but further tests are necessary to determine the point definitely under different weather conditions.

6. Our experiments this year on both cabbage and radishes cause us to think that two well-timed applications at a strength of 1 oz. to 8 gallons of water are probably all that should be required any year. Often one application would suffice, but variations in weather from year to year are so great that it would not be safe to rely on fewer than two.

7. The proper time to make the first application to early sown radishes, cabbage and cauliflower requires long and close observation to determine, but its determination is a matter of great importance; for it would often mean the saving of one application. The rule:—to apply the solution first four days after setting out the plants and again twice at intervals of a week—is not a scientific rule and is unsatisfactory. Judging by last year's experience, the first treatment should be just about the time that European plums begin to bloom. Flies began to emerge in our cages last year on May 12th, and were first observed in the field on May 13th. Egg laying in cages began May 17th, and eggs in the field were fairly common by May 22nd. European plums began to bloom in the same district between May 17th and 19th.

8. When plants are not set out until the flies are known to be present and to be laying eggs, the first application should apparently be made on the third day after the setting out or, in the case of radishes, the third day after the earliest plants have come through the soil. The reason for this is that we must try to destroy the eggs and prevent the entrance of the tiny maggots into the root. As eggs sometimes hatch in two days it would be unsafe to postpone treatment later than the third day, unless of course the weather was cool, when an extra day might be allowed.

9. The best length of time between applications may vary somewhat from year to year because of variations in weather but, judging from our results on radishes this year, a five days interval is better than a week.

10. The presence of a mixed fertilizer (4-8-4) did not make much difference in results on radishes (It was not tried on cabbage). There was a little higher percentage of infestation on the fertilized part, but not sufficient to justify one in concluding that the fertilizer was the cause.

11. Much time was devoted to determining how the corrosive sublimate controls the maggot. Strange to say our results this year are almost directly opposite to those in 1919. The difference in results may be partly due to the great difference in the seasons themselves, and partly to the different methods employed in the two years. In 1919 our results indicated that corrosive sublimate controlled only by repelling the larvæ, but this year they indicated that it controlled by killing most of the eggs and also many small larvæ and some larger larvæ and by repelling larvæ from the plants.

THE CONTROL OF THE CABBAGE ROOT MAGGOT IN BRITISH COLUMBIA.

R. C. Treherne, Entomologist in Charge for British Columbia, and M. H. Ruhman, Assistant Entomologist.

During 1919 the experiment conducted for the control of the Cabbage Root Maggot (*Chortophila brassicae*) on both cabbages and cauliflowers proved the superiority of the Mercury Bichloride treatment over other remedial measures, including the tar-paper protector. The 1920 experiments, therefore, were planned to test the value of Mercury Bichloride on a strictly commercial scale. A field of 25,000 Early Jersey Wakefield cabbages was chosen, and four applications were planned with Mercury Bichloride in solution at the rate of 1 oz. to 10 Imperial gallons of water. The first application was to be given three days after transplanting, and this was to be followed by three further applications at ten day intervals. Close watch was kept for the deposition of the first generation eggs and for the first appearance of adults. Transplanting took place in the field on April 25th this year and on the few days following. The materials for application were in readiness for the third-day treatment but, inasmuch as no eggs were yet laid and no flies had been seen, it was decided to withhold any action. The first adults seen in the field were observed on May 5th and the first eggs were laid on May 10th. Hence the first treatment took place on May 11th, or sixteen days after transplanting, or in other words, again, exactly in time for the scheduled second treatment.

The second treatment should have been made on May 21st, but owing to a recent irrigation which left the soil too wet to walk over, it was delayed until May 25th. The third treatment was made on June 4th. A fourth treatment was applied on June 18th, but only to half the acreage. So that, in summary, 25,000 cabbage plants, transplanted about April 25th., received three applications of Mercury Bichloride at 1 oz. to 10 gallons of water on May 11th, May 25th, and June 4th, and about 12,000 plants received a fourth application at the same strength on June 18th.

The results showed no maggot injury, and no larval infestation was observed on any plants examined either on those plants which had received three applications or those which had received four. The stand was perfect, and the experiment was a complete commercial success. About 1,000 plants died in the first week or two after transplanting, from a damping-off fungus, but these were not replaced. In fact no plants were replaced throughout the season. The crop harvested was 29 tons of marketable cabbages. It may be stated here, that in another block of 25,000 cabbages under similar crop handling and growing on similar soil and presumably with a similar degree of infestation but untreated, the crop harvest was 16 tons. Time did not allow us to check closely the comparative data of fly or larval infestation. Consequently, even allowing for all variations and experimental errors the difference in the marketable yields was so great as to leave no doubt at all as to the efficacy of the Mercury Bichloride treatment.

Various blocks of cabbages at various points in the North Okanagan were treated on our recommendations with Mercury Bichloride, under individual growers' own immediate directions. Records from these blocks have now been received, and without exception complete satisfaction has been obtained. Several growers reported no loss at all, others claimed a slight degree of infestation after the last treatment at the end of May, and all recorded yields per acre of from fifteen to twenty tons. In the Armstrong district, of those cabbage plantations which were not treated, not twenty-five per cent made even small cabbages, and in those blocks where the paper discs were used about seventy five per cent of marketable heads were cut. The results of the 1919 and 1920 experiments have left no doubt in our minds as to the efficacy of the mercury salt treatment, and those growers with whom we have worked are clearly of the opinion that the tar paper disc is not so good, and although the cost may be less, the tar paper method is not so commercially practicable as the mercury treatment.

Method of Application. The method of application we used in handling 25,000 plants was as follows:

A concentrated stock solution was prepared the day previous to treatment by dissolving the mercury salt in boiling water. This was done by suspending the salt in the sugar sack in a fifty American gallon oil barrel, and pouring the boiling water over the sack. This stock solution was drawn on a waggon to the centre of the field, a large watering cart with a capacity of two hundred Imperial gallons and a number of empty barrels being drawn also to the same point. This stock solution was reduced to make a solution of 1 oz. to 10 gallons of water, there being 2 oz. of mercury salts in each gallon of stock solution. Two ordinary four gallon coal oil tins were suspended on a yoke placed across the labourer's shoulders, and the diluted solution was applied to the roots of each plant, at the rate of two fluid ounces, by means of a cheap dipper.

The Cost of Application.

Per 24,000 plants.

1st Application:	$HgCl_2$, 2½ lbs. at $4.00 per lb.	$ 10 00
	Time: 20 hours, 1 man at 50c per hr.	10 00
2nd Application:	$HgCl_2$. 3 lbs. at $4.00 per lb.	12 00
	Time: as above	10 00
3rd Application:	$HgCl_2$, 3 lbs .at $4.00 per lb.	12 00
	Time: As above	10 00
Time for preparation, Hauling, etc.,		3 00
	Total Cost:	$ 67 00

The total cost of three applications approximates one cent for four plants, while for four applications the cost would be one cent for three plants.

INTER-RELATIONS IN NATURE.

W. Lochhead, Macdonald College, Que.

To the economic entomologist the investigation of the "Inter-relations in Nature" should be one of the most important fields of study, for abundant evidence has been collected to show that all nature is a vast system of linkages, one part dependent upon another in an intricate web of life, and that disturbances in one portion of the system are followed by disturbances in another. To Darwin, more than any other person, science is indebted for the elaboration of the idea and for the clear demonstration of its practical importance.

Since Darwin's time the number of examples of inter-relations has been greatly extended through the observations of thousands of investigators. In our boyhood days we were accustomed to rhyme the chain of events in "The House that Jack Built," which ends with "This is the cat that killed the rat that ate the malt that lay in the house that Jack built." In Nature many such chains have been unravelled, binding animal with animal, and animals with plants and these again with the inorganic world. Man eats the fishes that eat crustacea that eat infusoria that eat bacteria that feed on decaying organic matter in some pond.

The purpose of this paper is to discuss briefly, or rather to point out those inter-relations in nature that have to do more particularly with insect life. The subject is a big one, so that much more must necessarily be left unsaid than can possibly be said in a paper on this occasion.

The following relationships will be discussed.

1. Insects in relation to insects.
2. Insects in relation to other animals.
3. Insects in relation to plants, including bacteria and fungi.
4. Insects in relation to inorganic nature.

1. Insects in Relation to Insects.

The part played by predatory and parasitic insects in the regulation of insect life has been frequently discussed at these meetings. The topic is a very important one and studies are being carried on at many stations, and none better than those by Mr. Tothill, of the Dominion Entomological Laboratory at Fredericton, on the factors operating on the Forest Caterpillar and the Fall Web Worm.

The elaborate studies of the parasites of the Gypsy Moth in New England, and their part in the control of the pest have been summarized by H. S. Smith in the "Journal of Economic Entomology," August 1919, as follows:—

1. The reproductive capacity of available entomophagous insects must be much higher than that of the host. This proposition is self-evident, and needs no amplification.

2. A complete sequence of parasites affecting the egg, larva and pupa of the pest. The importance of this factor was fully shown in the campaign against the gypsy moth.

3. The entomophagous forms must be capable of being reared or obtained in sufficient quantities to overcome the pest in the field. This factor is one of the most difficult to bring into operation. Lady-birds are readily reared and collected.

4. The cost of producing natural enemies must remain well within the bounds of profitable crop production.

5. Secondary parasites in the local fauna should limit as little as possible, much less entirely prevent, the action of the primary parasites. This factor is also one that is most difficult to control.

6. Agricultural practices such as spraying and fumigation which affect adversely the breeding of natural enemies should be prevented. It is probable that the extermination of the imported Chinese lady-bird in southern orchards was due mainly to spraying operations with lime-sulphur carried on as a practice.

7. The relative ability of the pest and its enemies to spread is an important factor. If both be good fliers, the power of spreading is increased but the likelihood of extermination of the pest is lessened.

The citrus mealy-bug has been controlled in Southern California by the Australian lady-bird *Cryptolaenus montrouzieri* which was reared in large numbers at the State Insectary, and collected in orchards where they had become abundant late in the season. In this instance, as in that of the cottony-cushion scale, the lady-bird is an active insect while the scale insect is fixed to the plant. Moreover, the lady-bird has more generations than the scale insect, and is practically free from parasites.

Dr. P. Marchal calls the gipsy and brown-tail experiments in America "a gigantic biological analysis and synthesis bearing upon all the elements which constitute the harmonic groupings of plant-feeding insects, their predators, parasites and hyperparasites; the taking apart piece by piece of the whole system, and its partial reconstruction in a new environment, forcing it to give the greatest possible stress to the elements most favorable to man, and reducing to the minimum those which oppose their action."

2. Insects in Relation to Other Animals.

Nature has evolved not as independent but often as closely dependent organisms. The well-being of one set is frequently related in many ways to other sets, and no creature can be said to live unto itself. Insects and plants, for example, have been for long ages mutually adapting themselves one to the other, the plant to the insect and the insect to the plant. We all know how birds keep down insects and many rodents; in fact, an approximate equilibrium has been established between them. Any disturbance or sudden reduction in the numbers of the birds of a region is sure to disturb the balance in the insect world and cause much loss to the crops upon which the insects feed.

Moreover, the number of carnivorous animals bears a definite proportion to the herbivorous animals upon which they feed, the herbivorous animals to the plants, the plants to insect visitors, etc. In this web of nature we may note that the animals preyed upon are more prolific than the predaceous forms. "Small rodents tend to be much more prolific than carnivores. The primary reason for this is probably that less individuated types tend to be more prolific." —(Thomson).

Sometimes man interferes with the balance of nature and serious consequences follow. Rats became a great plague in Jamaica, and to offset them the mongoose, a weasel-like animal, was introduced. The mongoose made short work of the rats, but it turned its attention to useful animals such as poultry, ground-birds and insect-eating lizards and snakes. As a result injurious insects and ticks have increased greatly, and both plants and animals have suffered much injury.

Facts which convince even the most sceptical are accumulating regarding the valuable role played by birds in the control of noxious insects. Studies of bird diets prove conclusively that the majority of our common birds feed mainly upon insects. Forbes of Illinois states after a careful study of the contents of the stomachs of birds that about two-thirds of the food of birds consists of insects. Well-informed writers tell us that without birds the earth would be uninhabitable after six years, and yet man in his ignorance is constantly destroying these valuable friends, simply because he finds that they levy an insignificant toll on his fruits and grains. It is possible that we would be better off if certain birds were greatly reduced in numbers, but of this we are not absolutely certain, for the web of life is most complex, and no person knows how far-reaching the results would be.

Aside from the fact that birds aid very materially in reducing the numbers of insects when they come as scourges, it is very important to remember that birds nip many incipient scourges in the bud. Their mobility and varied character and habits enable them to move rapidly from place to place and thus maintain the balance of nature which man is always tending to upset. Even in wild nature the balance is never quite complete; at best the equilibrium is unstable.

"It is very interesting that the two great classes of successful fliers should be, in the wide economics of nature, pitted against one another, wings against wings, freeman against freeman, invertebrate against vertebrate. 'little brain' against 'big brain,' 'instinct' against 'intelligence.' Practically this is the most important conflict of classes that the world knows."—(Thomson).

It is worthy of note that the Italian entomologists do not share the opinion of American and British fellow-workers as to the great value of birds in the control of insect life.

From 1850 to 1873, Rondani, an Italian, made most valuable contributions to the study of parasitology. He was of the opinion, however, that parasites were far more important than birds as control factors. He said: "The policing of the fields cannot be entrusted to birds because they are unreliable and kill the guilty with the innocent; they are robbers as well as guardians of the field products, and therefore do not yield the most, and sometimes any, calculable advantage. In the latter case they often do even more harm than good in the very things which were sought to be saved by their means."

Perris and Decaux of France in the seventies and eighties advocated strongly the use of parasites, and Berlese and Del Guercio of Italy, later recognized and emphasized the value of entomophagous insects rather than insectivorous birds.

In this conection it is interesting to note Silvestri's own opinion. He says: "I, for my part, believe that the usefulness and the harm of insectivorous birds balance each other, and that more frequently the former may be superior to the latter, considering things only from the viewpoint of immediate agricultural interest."

Insects and Animal Diseases.

The relation of insects to animal diseases is now well known. The Anopheles mosquito carries the malarial organism, the Stegomyia mosquito the yellow-fever organism, the house-fly tubercular, typhoid fever and other germs, tsetse flies the trypanosomes of the terrible "sleeping sickness" of Central Africa, rat-fleas plague germs, lice typhus fever germs, etc. There is no longer any doubt as to the inter-relationships that exist in this part of the web of life.

Again, fishes furnish another link in the chain connecting mosquitoes and malaria. As is well known, certain fishes feed upon mosquito larvæ, and in many districts are undoubtedly instrumental in regulating the amount of malaria. It is believed that the presence of the small fish called "millions" in Barbados is the reason why that island is so free from malaria.

Rabbits are not only a direct cause of great losses to the Australian farmers, but also in directly developing the blow-fly pest which is very destructive.

3. Insects and Plants.

We are familiar with the enormous losses produced every year by the action of insects and fungous diseases on our cultivated crops. But we should not fail to look at the other side of the shield, and ascertain how many plants are dependent upon insects for their fertilization and the production of seed.

Elsewhere (*In the Third and Fourth Reports of the Quebec Society for the Protection of Plants*) I have discussed the relations between insects and plants, and their value as pollinators of useful plants. In this connection I may quote Dr. Phillips' remarks regarding the value of the honey-bee: "The production of millions of dollars worth of fruit depends largely on insect pollination, and no insect is so important in this work as the honey-bee. It is a most conservative estimate to claim that the honey-bee does more good to American agriculture in its office as a cross-pollinator than it does as a honey-gatherer."

In the relation of insects to plant diseases, two aspects present themselves, viz. 1, the rôle of insects as disease-carriers to plants, and 2, the role of fungous diseases in destroying insects.

It is clear that if these relations are to be thoroughly investigated, the economic entomologist must work in close co-operation with the plant-pathologist.

With regard to the part played by insects as disease-carriers to plants, I cannot do better than refer you to the excellent paper by Prof. Caesar read at the last meeting here (1918 Report Ont. Ent. Soc.), and to the article by Mr. E. M. DuPorte in the 11th Report of the Que. Soc. Protection of Plants (1918-19) where the subject is fully discussed.

An interesting relation is the double-host relation of many aphids. Nearly every year adds to the number of aphids that have this relation, and future studies will perhaps furnish an explanation of this interesting movement in early and late summer to the host plants. The relation is of interest to the economic worker as it suggests additional means of control.

Another inter-relation somewhat closely related to the foregoing is that of useless plants and insects. One instance will suffice. The hawthorns act as hosts for many insects that are injurious to the apple. It is clear that this relationship demands more careful study by economic entomologists.

With regard to the utilization of fungous and protozoan diseases[1] in insect control, it may be said that many experiments have been conducted within the last thirty years with the object of controlling injurious insects through the artificial production of epidemics of fungous diseases. As in the case of parasitism, unexpected difficulties have appeared under field conditions. It was soon discovered that "fungi are very dependent upon external conditions, and in many cases the apparent absence of a particular fungus in a locality is usually an index of conditions unfavorable for its development and an artificial introduction will be useless." (Glaser).

Out of the large number of experiments that have been carried out, I shall briefly refer to a few of the most outstanding ones. Franz Tangl in 1892 used spore emulsions of *Botrytis bassiana* against the caterpillars of the nun moth of Central Europe. While the experiments were eminently successful in the laboratory where all the infected caterpillars died of "muscardine," those carried on outdoors gave negative results. Tubeuf also obtained like results with *Cordyceps militaris.*

Many of us perhaps are familiar with the work of Snow and Forbes in connection with the artificial use of *Sporotrichum globuliferum* against chinch bugs. Later Billings and Glenn also carried on experiments with the same fungus. Their results are summarized as follows:—

"1. In fields where the natural presence of the fungus is plainly evident, its effect on the bugs cannot be accelerated to any appreciable degree by the artificial introduction of spores.

"2. In fields where the fungus is not in evidence, spores introduced artificially have no measurable effect.

"3. Apparent absence of the fungus among chinch bugs in a field is evidence of unfavorable conditions rather than lack of fungous spores.

"4. Laboratory experiments can be made to prove that artificial infection accomplishes results upon bugs confined in cramped quarters and without food, but in the field, where fresh and usually drier air prevails and food is abundant, an entirely different situation is presented."

In 1912, Morrill and Black experimented with the artificial use of the white fly fungi, *Aegerita webberi, Aschersonia aleyrodis and A. flavocinta.* They summarized their conclusions in these words:

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(1) European botanists, such as DeBary and Tulasne, about the middle of the last century, called attention to the importance of white muscardine (*Isaria Densa* Link.) as a check on many insects. Metchnikoff, and Krassilstscik cultivated the green muscardine (*Metarhizium anisopliae* Sorokin) for the control of Anisoplia and the beet weevil (Cleonus punctiventris).

Efforts have also been made to check the white grub in Europe by means of *Cordyceps melolonthae* Tul., *Isaria densa,* and *Botrytis tenella* Sacc.

"1. The fungus parasites thrive only under suitable weather conditions during a period of about three months each year; generally speaking the summer months in the case of the two Aschersonias and the fall months in the case of the brown fungus.

"2. Under natural conditions, without artificial assistance in spreading, the fungi have ordinarily, in favored localities, controlled the white fly to the extent of about one-third of a complete remedy through a series of years.

"3. The infections secured by artificial means of introducing fungi, while successful in introducing fungi, have thus far proved of little or no avail in increasing their efficacy after they have once become generally established in a grove.

"4. Experiments by the authors, and by citrus growers in co-operation with the authors, involving the treatment of thousands of trees with suitable 'checks' or 'controls' have shown that when fungus (red or yellow Aschersonia) even in small quantities is present in a grove, there is no certainty that from three to six applications of fungus spores in water solution will result in an increased abundance of the infection on the treated blocks of trees by the end of the season. In some of the most important and carefully planned and executed experiments, the fungus has increased more rapidly in sections of the groves which were not sprayed with spore solutions than in the experimental blocks."

The brown-tail caterpillar is attacked by the fungus *Entomophthora aulicae,* and an attempt was made by Speare and Colley in 1912 to use it in the control of the pest. They state that considerable success has attended their efforts, not that the fungus is a "cure-all" but it is a powerful check. Under proper conditions of introduction from sixty-three to one hundred per cent. of the caterpillars can be destroyed.

Reference has already been made to the "wilt disease" of the gipsy-moth caterpillars as a factor in the control of these pests in New England. It made its appearance about 1900, and is now distributed over the territory infested with the gypsy moth, according to Glaser. It is an infectious disease but epidemics occur only in localities infested heavily with the gypsy moth. Infected caterpillars became flaccid, and later their tissues disintegrate completely, due to the fermentative and toxic nature of the virus. The brown liquid of a dead caterpillar shows under the high power of the microscope large numbers of polyhedral bodies of various sizes, but the exact nature of the casual organism has not been determined. The virus is filterable with difficulty.

The success of wilt infection experiments is absolutely dependent upon attention to seemingly insignificant details, but this much is known, that infection takes place through the mouth by means of the food.

It is possible that further studies of the disease will evolve some practical method of using the virus for the destruction of larger numbers of the caterpillars. Already, however, it has been ascertained that climatic conditions appear to bear an important relation to wilt in the field, and that temperature has an important relation to the period of incubation of wilt.

4. The Relation of Insects to Inorganic Nature.

This relation has also been investigated by many workers, for it has long been known that insects are influenced profoundly by climatic conditions. The effects of changing and unusual conditions of heat and cold, snows and rains, humidity and dryness, and other seasonal changes have long been known to be important factors in regulating the number of insects.

A variable winter is more fatal to most forms of insect life than a continuously severe or a continuously mild winter. When insects go into hibernation they become torpid and are able to resist quite low degrees of cold, but if thaws occur they may become partially active for a short time. With every change of this nature the insect loses vitality and this loss may prevent transformation in the spring. Moreover, the effects of thaws in breaking up larval and pupal cells in the ground are often quite marked.

Sudden changes of temperature of say thirty degree range within a few hours, which are quite common in our latitude, are very fatal to aphids and many caterpillars during their early stages.

Another feature of the environment of insects is the different degree of humidity demanded by each species or genus. Some insects like the thrips, chinch bug, wheat midge and red spiders are more abundant under dry conditions, while other insects like the plant lice and Hessian-fly develop best under moist conditions.

Observations seem to show that meteorological changes are often fatal to those insects that live on the fringe of their distributional range. Under favorable conditions some insects may migrate northward, and even do much damage, but such movements may be termed *incursions,* as they are temporary and spasmodic in their character.

The range of distribution of different insects has been mapped ,and this has shown that insects tend to conform to the same zonal distribution as plants, birds and mammals. Dr. Hopkins, of Washington, has extended our knowledge of the Bioclimatic Law and has shown how it may be utilized by the economic entomologist in solving some of his problems. (See Article in 1919 Report of this Society.)

The recent study of tropisms appears to show that the movements and conduct of insects are often the result of stimuli proceeding from the inorganic world, such as *light, gravitation, heat, electricity, moisture, pressure*, and *chemical substances.* Already many interesting observations have been made and a few of these have an economic bearing.

It seems to me that this field of study, viz., the reactions of insects to stimuli, is full of great possibilities for the economic entomologist. In the future, when our knowledge of tropistic responses has greatly increased, we may expect to see the introduction of many modifications of our present methods of control.

He who studies attentively any common plant or animal may form a conception, often an imperfect one, of the widely extending lines and cross lines of inter-relationships with other plants and animals. The work of science is to classify and describe these inter-relations, and in this line much progress has been made since Darwin's day. The economic entomologist and botanist, who are specially interested in the control of injurious insects and plants, must keep constantly in view this idea of relationships in Nature if they would deal successfully with the problems confronting them.

At the recent meeting of the American Association of Economic Entomologists at Philadelphia many prominent leaders emphasized the necessity for a more thorough biological study of all injurious forms. In other words, more attention should be given to ecologic or bionomic relations, that is, to the study of the Web of Life.

A knowledge of inter-relations, even in departments not usually considered in close alliance, is often essential in unravelling the intricate pattern of life's web.

"Over a ploughed field in the summer morning we see the spider-webs in thousands, glistening with dew-drops, and this is an emblem of the intricacy of the threads in the web of life—to be seen more and more as our eyes grow clear. Or, is not the face of Nature like the surface of a gentle stream, where hundreds of dimpling circles touch and influence one another in an intricate complexity of action and reaction beyond the ken of the wisest ?"—(Thomson).

CONFERENCE ON THE EUROPEAN CORN BORER.

Mr. Gibson, in introducing the subject, discussed in general the corn borer situation in Canada and stated that the pest had been found in southern Ontario on August 10th, 1920. He also gave a brief account of visits which he had made to Massachusetts and New York States where the borer has become established, and referred to important conferences held in Ontario to discuss our infestations. The methods of control which the Entomological Branch had recommended were mentioned. Investigational studies were being made by the Division of Field Crop and Garden Insects chiefly by Mr. H. G. Crawford. The quarantine and scouting work was being done by the Division of Foreign Pests Suppression, under the direction of Mr. L. S. McLaine, Chief of the Division.

Mr. McLaine outlined the work that had been carried on by the Entomological Branch since the corn borer was found in the vicinity of Boston in 1917. The first steps taken were in the spring of 1919 when scouting work was undertaken in the Maritime Provinces and all shipments of corn on the cob from the infested areas in Massachusetts were traced. With the finding of the European Corn Borer in Western New York in the fall of 1919, two Canadian scouts were sent to the New York territory to receive training. Later in the season they scouted Welland County, particularly along the Niagara River.

Early in August, 1920, scouting was again started in southern Ontario and on August 10th, the first infestation was found at Lorraine Station, Humberstone Township, Welland County. The scouting was finally completed on October 23rd. Thirteen counties in all were scouted of which seven were found to be infested. One hundred and five townships were visited of which thirty-five were infested. As a result of the scouting work two distinct infestations were uncovered.

Infestation No. 1 extends along the Lake Erie shore from Fort Erie on the east to Dunnville on the west and about ten miles inland. This infestation covers approximately 340 square miles.

Infestation No. 2 extends along the Lake Erie shore from Bayham township on the east, to Harwich on the west and from Farquhar, Usbourne township, Huron County, on the north to the Lake shore. This infestation covers approximately 2,440 square miles.

Prof. Caesar stated that as soon as he learned of the discovery of the insect, he visited the district, and then appealed to the Ontario Department of Agriculture for the use of a Ford car and the appointment of two scouts. This request was granted and the men joined the Dominion forces and remained on the work until the close of the scouting. One of the scouts, Mr. Garlick, was then assigned to make field observations and prepare for next season's investigations. He made estimates of the percentage of larvæ in the stubble, and also treated stubble in various ways to see the effect of the winter on the larvæ under different conditions.

All the District Representatives of the western portion of the province were called together, and a field meeting was held in some of the worst infested fields near St. Thomas. The life history of the insect was explained, and means of control outlined. Later in the season a similar meeting was held with the District Representatives in the eastern portion of the province.

He realized that the European Corn Borer was a serious pest, and that the handling of the situation was a serious problem, but he was optimist enough to believe that the combined efforts of the U. S. Bureau of Entomology, the Entomological Branch and the Ontario Department of Entomology, would result in the discovery of a practical method of control and that the corn industry would be saved.

Mr. Worthley (in charge of the corn borer field work) of the U.S. Bureau of Entomology stated that in 1919 the state of Massachusetts appropriated $100,000. for corn borer control. This was the first large appropriation for the control of this pest. On July 1st of the same year the U.S. Federal appropriation of $250,000 was made available.

At the present time a total of 5,651 square miles are infested by the pest in the United States.

The New England infestation covers 3,350 square miles.
" eastern New York " " 1,365 " "
" western New York " " 936 " "

Mr. Worthley pointed out the difficulty of handling the corn borer situation in Massachusetts, particularly in the vicinity of the market gardens. It was found that the weed infestation was very heavy in certain market garden sections and it was stated that in a ten acre weed patch adjacent to some celery fields the number of corn borer larvae probably averaged two million to the acre. In order to overcome this difficulty extensive operations were carried on in burning over these districts. When the burning was first started fuel oil was used but this grade of material deteriorated so that it was necessary to replace it with kerosene oil which was purchased in 50,000 gallon lots.

In addition to burning, extensive experiments were carried on with weed killers and in some localities were found to be generally satisfactory.

As regards the control work in western New York extensive experiments were carried on in the mowing of corn stubble close to the ground. The stubble after being cut was collected and thrown into a machine for crushing.

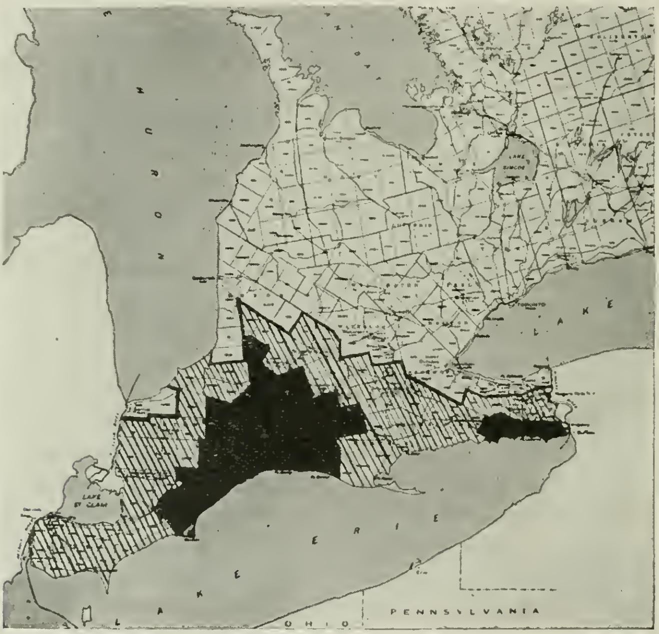
Potato diggers have also been experimented with for the purpose of taking out stubble but these were not found practicable in all cases on account of the fact that whereas they work satisfactorily in sandy soil a great deal of trouble is encountered if the soil is at all heavy or wet.

In addition to the control work the quarantine of the infested territory has to be maintained. This necessitates the inspection of all plants liable to harbour the corn borer consigned to points outside the area infested by the pest. Eighty inspectors are now engaged on this inspection work and up to the present time 500,000 inspections have been made.

European corn borer egg clusters have been found on celery, beans, rhubarb and spinach. Chrysanthemums have also been found to be infested with the borer in the greenhouses and markets.

Mr. Walton, Entomologist in charge of Cereal and Forage Insect Investigations, briefly stated his Division was continuing a series of investigations on the biology, habits, etc., of the corn borer and had established a laboratory at Arlington, Mass. Branch laboratories were also located in the vicinity of Schenectady and Silver Creek, N.Y.

In addition to the investigational work arrangements were being completed for the importation of parasites from Europe. A laboratory was also established at Auch, France, in charge of Mr. W. R. Thompson. It was expected that a large importation of parasites would be made this coming winter. It is also expected that additional laboratories would be established in Europe as necessity arose.



Map of Western Ontario, showing area scouted for European Corn Borer in 1920. Townships in solid black were found to be infested, those crossed by the diagonal lines only, were scouted but no borers were found.

Mr. Crawford spoke in general of his investigations in the Union Village area about six miles from St. Thomas, Ont., in the autumn of 1920. It was in this area, an essentially flint growing region where the greatest infestation was found. In some fields from 70 to 99% of the stalks were infested, while pure stands of dent corn in the same vicinity had a 45% stalk infestation.

One field of flint corn in which 93% of the stalks were infested had been studied closely. The attack in this field was distributed over the different parts of the plant as follows: Tassels, 50% injured; nodes, 17%; internodes, 25%; cobs, 55%; shanks, 51%; nubbins, 45%; stubble, 29%. This infestation resulted in the falling of 50% of the tassels, a devouring of 3% of the kernels and a breaking down of 42% of stalks at one or two points.

Mr. Crawford referring to the infestation in dent corn stated that this variety was very markedly less intensely attacked than flint corn and the effect upon the plant much less. Thus the field of dent corn 45% infested lost but 7.7% of tassels and only 8% of the stalks were broken over, almost no cobs infested and the stubble but very slightly infested. Even in a mixed field of flint and dent corn where the flint cobs were 38% infested, the dent corn showed but 9%.

NOTES ON THE CONTROL OF THE ROSE MIDGE.

William A. Ross,

Dominion Entomological Laboratory, Vineland Station.

At the annual meeting of this Society held at Guelph in 1916, Mr. Arthur Gibson, of the Dominion Entomological Branch, directed your attention to a serious greenhouse pest—the rose midge—which recently had been introduced from United States into Canada.* At that time, it was present only in one greenhouse, but since then it has been found in seven other greenhouses.

The experience of florists, both in United States and Canada, has shown that this insect when present is by far the most destructive pest of roses. In 1919 its depredations in one Ontario greenhouse caused a loss of twelve thousand dollars, and in another six to seven thousand dollars.

The following description of the injurious habits and life history of the rose midge is taken from a short article, which the writer published in the Agricultural Gazette of Canada, Vol. 6, No. 2, Feb. 1919.

Nature of Injury. "When very abundant, the larvæ of the midge—whitish maggots—may be found feeding on any succulent part of the rose bush, as for instance, at the base of the flower buds, within the buds, on the upper side of tender leaves, and on leaf petioles. However, the usual point of attack is on the young shoot in the axil of a leaf petiole. Infested shoots grow crooked, and, as a general rule, wither and die. Affected flower buds, when not killed outright, may be so disfigured as to be unsaleable."

Life History. "The adult insect is a fragile two-winged fly, less than 1/16" in length. The female deposits her eggs between the folded leaves of the leaf buds, and to some extent in the axils of tender leaves and between the sepals and petals of the blossom buds. Under greenhouse conditions the eggs hatch in about two days. The maggots, as previously stated, feed on the tender tissues of shoots and buds, and become mature in from five to seven days. They then drop to the soil, change to the pupal stage and emerge as adult flies in about six days."

"The midge is most abundant and destructive during summer. With the coming of autumn it declines in numbers and by winter wholly disappears from the rose plants. It remains dormant in the soil through the winter months, and does not reappear again until the last of February or early March."

Control. Various methods of combating this pest have been tested or at least recommended—and among others the following:

Crop Rotation and Thorough Cleaning of House in Mid Winter. At the time the attention of the Entomological Branch was first directed to this pest only two reliable methods of controlling it were known, namely: (1) the growing of another crop instead of roses for one year, and (2) the destruction of all the plants and the removal of the soil in mid winter. Both of these methods would entail a very serious derangement and loss in business, and for this reason the growers refused to consider them until all other possible remedies had been exhausted.

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* The Superintendent of the Dale Estate, Brampton, informs me that a pest, which he believes was the rose midge, was present in one of the Dale rose beds fifteen years ago. It was very destructive that year, but wholly disappeared after the soil in the infested bed was thrown out in March.

CHANGING THE SOIL ANNUALLY. The value of changing the soil annually as a method of controlling rose midge, supplemented by the pinching off of all infected buds, has been proved by the experience of the Bedford Park Floral Co., Toronto. According to the foreman, the midge has been present in these greenhouses for the past four years, and although at times it has been fairly abundant on Ophelia roses, it has never increased to such an extent as to cause any serious loss. The soil in these houses is removed and replaced annually during the period early May to the first of July. Infested buds have always been destroyed as soon as they were noticed.

LIQUID BAITS. Several experiments were conducted at Grimsby in 1919, in order to determine if it were possible to trap the adult midges by means of liquid baits. Pans containing various mixtures with the following substances used as lures—molasses, oil of citronella, oil of lemon, oil of rhodium, oil of cloves, kerosene, cresol—were suspended among the rose bushes, and were left for two or three weeks. A considerable number of Diptera were caught in the pans, but not one of the "catch" proved to be a rose midge—most of the insects were fungus-gnats.

DRYING OFF. Although this method has not been tested, it seems certain that the rose midge could be exterminated in a greenhouse by drying off all the rose plants at the same time during the summer. As there would be no tender shoots on the plants for at least four weeks, the midge would die of starvation.

TOBACCO FUMIGATION AND DESTRUCTION OF INFESTED BUDS. Since 1916 Messrs. Miller & Sons, Toronto, have been combating the midge by means of tobacco fumigation and pinching off and destruction of all infested buds. At first they made a practice of fumigating for a period of three or four weeks in spring, and again whenever the midge became troublesome, but as this method did not wholly eliminate serious midge injury, they changed the system this past year, and fumigated every other night from early April to the last of October. This kept the insect down to insignificant proportions all season, and as a result no damage worth mentioning was effected.

The disadvantages of this remedial measure are (1) that in places where tobacco stems are not easily procured and where commercial nicotine preparations would have to be used, it is very costly: (2) that it does not wholly eradicate the pest: and (3) that according to some florists frequent fumigations stunt the growth of the plants.

NICOTINE FUMIGATION AND TOBACCO DUST TREATMENT. In 1916 Messrs. Sasscer and Borden * of the United States Bureau of Entomology, having determined by cage experiments that a covering of tobacco dust on the rose beds would prevent the full-grown larvæ from entering the soil, conducted the following experiment in a midge infested house in Maryland. All the rose beds were covered on October 12th, 1916. with tobacco dust averaging from one fourth to one half inch deep. To prevent the larvæ from entering the dirt walks of the houses, all walks were sprayed with kerosene emulsion. Simultaneously nightly fumigation with tobacco stems was inaugurated and continued until October 30th, inclusive, and from that date until November 8th the houses were fumigated every other night. The object of this fumigation was to kill all adults before eggs were deposited.

The results secured from this experiment were excellent—the midge was practically eradicated.

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* The Rose Midge—Bulletin No. 778 of the United States Department of Agriculture.

TOBACCO DUST TREATMENT. The results secured by Sasscer and Borden with tobacco dust were, later on, confirmed by laboratory experiments at Vineland Station. These experiments furnished us not only with positive evidence that a coat of tobacco dust would kill the full-grown larvæ which dropped from the plants, but also that the nicotine absorbed by the soil from the dust would destroy the midge pupæ and larvæ in the soil. In short, our laboratory tests indicated that in combating the midge it was not necessary to supplement the soil treatment by nightly fumigation with nicotine. In view of the cost of nightly fumigation the importance of this discovery is apparent.

For various reasons we were unable to give the tobacco dust remedy a trial under commercial conditions until this year, when it was tried out in four greenhouses.

OLFIELD'S GREENHOUSES. Messrs. Olfield and Sons' establishment at Grimsby, with 250,000 sq. ft. of glass, and containing some 85,000 rose plants, was very heavily infested with midge in 1919, when the insect caused a loss of approximately $12.000. At the time operations were commenced against the midge practically one hundred per cent. of the young growth of all the susceptible varieties was infested.

During the second week of August the fallen leaves on the beds were removed and the soil was tamped in order to break up lumps and to make the surface as smooth as possible. The beds were then thoroughly drenched with water, and a coat of tobacco dust one-fourth to one-half inch thick was applied, great care being taken to cover all parts of the beds (35 tons of dust used). As an additional precaution all the walks were sprayed with kerosene emulsion, in order to kill any larvæ which might have fallen from the plants to the walks. For two weeks after the dust was applied the foliage was syringed occasionally, but the beds were not actually watered. Our object in withholding the water was to prevent the washing of nicotine out of the dust until all the larvæ present on the plants had dropped to the soil.

RESULTS. The establishment consists of three ridge and furrow houses, which, for the sake of convenience may be referred to as Nos. 1, 2, and 3. In houses 1 and 3 absolutely no larvæ, with the exception of some present on the plants for a short time after treatment, have been found since the application of the remedy. In No. 2 a few infested Ophelia buds * were discovered on September 11th. All these buds were immediately destroyed, and the section in which they were discovered was promptly treated again with tobacco dust. Since this second treatment no midge has been seen up to the present.

It is of interest to note that the application of kerosene emulsion to the walks caused a very small percentage of the foliage of White Killarney to drop. The plants, however, were not injured to any appreciable extent.

DALE ESTATE. The Midge, introduced into this large plant in 1919, had established itself in three houses, and was causing serious loss. Early in July of the present year, from 300 to 400 infested buds were pinched off and destroyed daily in the worst affected section.

Operations were commenced against the midge about mid July. The beds were cleaned up, tamped, and were then carefully covered with tobacco dust, (38 tons used). At the same time the sidewalks were sprayed with kerosene emulsion.

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* We have good reason to believe that this infestation came from affected buds thrown under the benches by a careless grower.

Results. Excellent results were secured from this treatment. With the exception of some larvæ present on the plants for a short time after treatment, no midge has been seen up to the present.

Other Corroborative Results. The tobacco dust remedy proved equally effective in two other greenhouses—one in Toronto and the other in Grimsby.

It is of interest to note that at Ivey's Conservatories, Port Dover, good results in the control of midge were secured by covering all the rose beds early in the season with a heavy coat of finely cut tobacco stems. The beds were watered as usual, and it would appear that the nicotine washed in this way from the stems destroyed practically all the insects in the soil, because throughout the season no infested plants were found except in one section. This particular section was treated with tobacco dust in September, and Messrs. Ivey are now pretty confident that they have wholly eradicated the pest.

SOME MOSQUITO PROBLEMS OF BRITISH COLUMBIA.

Eric Hearle, Entomological Branch, Ottawa.

British Columbia has many serious mosquito problems with which to cope. She is not alone in this respect, for, on the Atlantic coast, in Northern Ontario and Quebec, and in certain of the Prairie provinces, mosquitoes occur in such numbers as to be of economic importance. The mountain province has, however, conditions and problems peculiar to herself, which are very different from those found elsewhere in Canada.

In British Columbia the huge ranges of mountains and the rivers fed by their melting snows constitute the main factors determining mosquito abundance. Other important factors are the climatic conditions, which determine whether the snow shall melt gradually or shall melt so suddenly that the rivers are unable to carry off the water sufficiently fast to prevent the flooding of the low-lying lands. The main mosquito problems of British Columbia are caused by those species of the mosquito fauna which breed in the flooded bottom lands bordering the rivers.

The Lower Fraser Valley Problem.

For the last two years a detailed study has been conducted of the serious mosquito problem presented in the Lower Fraser Valley. By means of automobile, motor boat and canoe, larval and adult surveys were made over an area of more than two thousand square miles. These, life history and laboratory experiments, and aerial surveys over some of the main breeding areas have resulted in the accumulation of sufficient data to indicate the important factors in the problem.

The Fraser river emerges below Hope from the precipitous, rocky, Fraser canyon into the Fraser delta—a broad low-lying valley of over two thousand square miles. The low elevation may be gauged from the fact that at the town of Mission, about forty miles from the coast, the altitude is only twenty-one feet above sea level. The dyking of huge tracts of land has appreciably reduced the mosquito breeding places; but there remain along the river many extensive low-lying areas capable of flooding at high freshets, and which are the cause of the mosquito trouble in the district. The height of freshet varies considerably. In 1919, the river rose 17′ 4″ (at Mission) and there was no mosquito pest. In 1920, the river rose 21′ 0″ (at Mission) and a very serious pest resulted.

It is very hard to estimate with accuracy the losses involved when a fairly thickly settled district such as the Fraser Valley is subject to the attacks of hordes of blood thirsty mosquitoes, but there are very few industries necessitating outside labour that are not seriously affected. The picking of small fruit is hampered, general farm labour is hard to obtain, work in the woods is almost impossible and, in 1920, most of the labour camps in the affected district were closed during the worst of the scourge. In places, the construction of roads and highways was held up. Cattle became emaciated and the drop in milk production was very marked. During 1920, in the worst affected places, even hens stopped laying eggs as they were unable to rest at night owing to the attacks of mosquitoes. In spite of screens, mosquito dope, and the general use of smudges, the inhabitants of the affected district suffer terribly from the winged pest that makes life a misery.

The Lower Fraser Valley has a fairly rich mosquito fauna, twenty species coming to hand during the two years, 1919 and 1920. Of these, two only constitute the really serious pest as conditions are not suitable for the development of the others in very large numbers.

Flood Water Mosquitoes.

Aedes aldrichi Dyar and Knab. This is a very small sage-grey mosquito with a central, divided brown line on the thorax. The abdomen has crisp, white bands, and the legs are dark and unbanded. The species is the dominant one in the Lower Fraser Valley, and breeds mainly in the flood pools in the alder-bottom areas bordering the river. The larva, previously unknown, was taken for the first time by the writer this summer. The only other records we have of this insect come from Idaho and Montana.

Aedes vexans Meigen. A medium-sized, dusty-brown mosquito. The abdominal bands are strongly constricted in the centre and the legs have small rings at the base of the tarsal segments. This species is second in importance in the Lower Fraser Valley and although not so abundant as *Aedes aldrichi,* it sometimes occurs in enormous numbers. Open flooded meadows and prairies are the main breeding places, although great numbers also breed in the alder-bottom flood pools. The species is a very common one both in Europe and America.

Aedes cinereus Meigen. A very small species with a rusty brown thorax and unbanded black legs. The abdominal segments are usually unbanded but there is a broad, white stripe along the side of the abdomen. The species is a fairly common one in the Lower Fraser Valley but is comparatively unimportant. The larvæ are found in shallow protected surface pools, as well as in flooded alder-bottoms.

General Breeders.

Culex tarsalis Coquillett. This fairly large brown mosquito has a very striped appearance. The legs have broad bands at the base and apex of the tarsal segments ,and the proboscis has a broad crisp stripe, the abdomen is fairly broadly banded. The thorax is dark chestnut brown and is ornamented with fairly distinct markings. The tip of the wing has an indistinct patch of yellow scales Although generally distributed throughout the valley, this species is not a very abundant one. It is a vicious and persistent biter, and enters houses. The larvæ are found in a great variety of habitats, roadside ditches and open flooded meadows being the chief among them.

Anopheles punctipennis Say. The yellow and black patches on the wings are the distinguishing feature of this mosquito, which is the commonest anopheline in the district. The poison is very irritating and the insect shows great persistence in entering houses. The larvæ are ubiquitous. Fortunately this species does not occur in abundance in the district.

Culex saxatilis Grossbeck. A very small dark culex in which the white abdominal bands are at the apex of the segments, instead of the base. The legs are dark and unbanded, and the brown thorax is ornamented with two paler spots. This mosquito is very generally distributed in the valley and is fairly common. It is of no importance, however, as it is non-predaceous on warm-blooded animals. The larvæ are found mainly in surface pools and ditches, especially those protected by willow and other growth.

Woodland Mosquitoes.

Aedes punctor Kirby. This is the commonest mosquito in deep woodlands and in wooded mountain areas. It is a fairly large, dark, robust species with a yellowish grey thorax having a broad, central, brown band. The abdominal segments have narrow white bands and the legs are dark and unbanded. Although not a very vicious biter, this species is troublesome in localized areas, as it sometimes occurs in great abundance. It is restricted to woods and the larvæ breed in temporary woodland pools.

Aedes varipalpus Coquillett. This is a very beautiful black and white mosquito. The tarsal segments have broad, white basal bands and the white abdominal bands are V shaped, being narrowed at the sides and broadened centrally. The thorax is beautifully ornamented with a variegated pattern of black and white. Although it is a bad biter, the species is of no importance as, although very generally distributed, it is never abundant. It is a woodland species and breeds in treeholes. The males will hover around and settle on the person, as well as the females.

Aedes canadensis Theobald. This species has a light brown thorax. The legs are banded at the base and apex of the tarsal segments, and the ultimate hind tarsal segment is entirely white, The black abdomen has indistinct white bands at the base of the segments. This is essentially a woodland species. It is very rare in the Lower Fraser Valley.

Aedes fletcheri aloponotum Dyar. This large red-brown mosquito has broad white bands on the legs at the base of the tarsal segments. The abdomen has broad white basal segmental bands, and the thorax is brown and unornamented. It is rare in the district and is found mainly in wooded areas.

Salt Marshes and Coastal Pools.

Aedes curriei Coquillett. A very beautiful fawn-coloured species. The legs have small bands at the base and apex of the tarsal segments, and the abdomen has a broad longitudinal stripe as well as basal segmental bands. The thorax is straw-coloured and is ornamented with a median and sublateral brown stripes This species was taken only along the coast-line and on outlying islands. Larvæ are found in brackish water in rock pool and salt marshes. It is seldom sufficiently abundant to be of importance.

Permanent Swamps.

Mansonia pertubans Walker. This stoutly-built, dusty-looking mosquito is easily recognised by the mixture of broad black and white scales clothing the wings, the striped proboscis and abdomen, and the striped legs in which the tarsal segments have broad basal stripes and the hind tibiæ have also broad stripes. The poison of this species is more virulent than that of any other Canadian mosquito, but fortunately the species is a rare one in the Lower Fraser Valley. It breeds in permanent swamps where there is much vegetation. The larvæ and pupæ do not come to the surface to breath, but remain attached to the submerged portions of certain aquatic plants.

Artificial Receptacles and Small Collections of Waters.

Culiseta incidens Thompson. This is the common rain-water barrel mosquito of British Columbia, and is one of the most abundant mosquitoes of the Lower Fraser Valley. Fortunately the blood-lust is so poorly developed that the species is practically non-predaceous on man. The very large size, dark appearance, and the black spots on the wings render the species an easy one to recognize. The abdomen is truncate at the tip and has broad white basal bands. The thorax is ornamented with indistinct markings and the legs have very indistinct bands at the apices of the tarsal segments. The larvæ, although preferring rain-water barrels to other breeding places, are to be found in a great variety of habitats, even having been taken in brackish coastal pools in company with *Aedes curriei.*

Culex pipiens Linnæus. This mosquito has probably only recently been introduced into British Columbia, as it was found only in Vancouver and was very scarce there. It was probably brought in by shipping, as it is known to have been very widely spread in this way. The species is one without very outstanding characters. The abdomen has crisp white basal bands, the legs are dark and unbanded and the thorax is a dusty reddish-brown. Although rain-water barrels are the favorite larval habitats, the larvæ are to be found in almost any collections of water round houses. *Culex pipiens* is essentially a domesticated species whereas *Culiseta incidens* is in the transition stage and is only semi-domesticated.

Miscellaneous.

Culiseta impatiens Walker. This very large brown mosquito is fairly common in the Lower Fraser Valley, but is of little economic importance. The legs and prosboscis are brown and unbanded and the thorax is clothed with brown scales. The abdomen has broad basal segmental bands.

Culiseta inornatus Williston. This mosquito is very hard to distinguish from the last. The color is somewhat paler and the cross-veins on the wings are scaled, unlike *C. impatiens,* in which they are bare. This species is comparatively rare.

Culiseta alaskœnsis Ludlow. This species is larger and darker than the above two, and is easily recognized by the indistinct spots on the wings and the distinct white basal bands on the tarsal segments. It is a very rare mosquito in the Lower Fraser Valley.

Besides the above, two other species were found which have not yet been identified; one of these, a rare species from the Fraser Canyon, appears to be new to science.

Eucorethra underwoodii and *Sayomyia trivittata,* two interesting insects very closely allied to the true mosquito, were also found to be fairly abundant in the district.

In dealing with the mosquito problem of the Lower Fraser Valley only two species need to be given serious consideration. The peculiarities of topography and flooding, at times, provide these two members of the mosquito fauna with satisfactory conditions for developing in enormous numbers. The reclamation of the low lands bordering the river, by dyking and pumping, has proved to be the most effective control measure, whenever it has been undertaken in an efficient manner. While much dyking has been done, huge breeding areas remain unreclaimed and produce little but mosquitoes. An aerial survey is to be undertaken next year to map out the unreclaimed areas capable of flooding, and it is believed that when these large breeding places have been dealt with, the mosquito pest will cease to be a source of misery and financial loss to the inhabitants of the affected parts of the valley.

Other Southern British Columbian Mosquito Problems.

During the past two years a number of brief surveys of mosquito conditions in other parts of British Columbia were undertaken. The Columbia valley, the Arrow-lake district, the Slocan valley, the Osoyoos valley and other places were visited. Although the details of the problem, the species involved, and the intensity of the pest at different places varied considerably, the basic factors in the problems appeared much the same, the flooding of breeding areas through the quick melting of the snow at the mountain sources of the rivers. *Aedes vexans* was found to be a very constant species, but the fauna of the different valleys varied considerably; *Aedes punctor* replaced *Aedes aldrichi* as the dominant species in the more deeply wooded, less developed valleys, while still other species, not found in the Lower Fraser Valley, were dominant in the drier, more arid regions. As the surveys were very brief and incomplete, these species will not be dealt with here, but enough has been said to indicate the enormous field for valuable research that British Columbia offers to those interested in the study of Mosquito Control. The problems are of vast importance and their satisfactory solution can only be arrived at as a result of careful faunal and topographical investigations.

REPORT ON INJURIOUS INSECTS IN QUEBEC DISTRICT FOR 1920.

Georges Maheux, Provincial Entomologist, Que.

From the viewpoint of injurious insects, we have not experienced, during this last summer, any higher damages than the previous year. It is to be noted that most of those insects which are usually prevalent were rather scarce this year; and this especially proved true of two species, *Hemerocampa leucostigma* (Sm. and Ab.) and *Vanessa antiopa* L. The few serious cases we have on record were generally restricted to a limited area. On the whole, no regular outbreak has been observed.

Ornamental and Shade Trees. The most remarkable thing in this group of plants was the large increase of poplar borers, *Cryptorhynchus lapathi* Linn., undoubtably due to the fact that shade tree plantations have made enormous progress these last two years. Plants imported from Ontario nurseries and elsewhere are too often infested by this borer. The writer inspected a place where out of eight Carolina poplars set up in May six were literally crowded with grubs and died before the end of August. This situation has rapidly grown into a serious problem requiring our attention without delay.

The bronze birch borer, *Agrilus anxius* Gory, has continued to kill our fine cut-leaved birches at the same rate as last year; in fact, we receive about the same number of complaints each season indicating that the reproduction of the borer is simply normal. From Levis and Portneuf counties injuries to the sugar maple were reported caused by the cottony leaf scale, *Phenacoccus acericola* King. In the city of Levis particularly some maples had their foliage badly infested; consequently, the leaves started to turn yellow and dried by the middle of August. Since 1918, as mentioned above, *Vanessa antiopa* L. and *Hemerocampa leucostigma* Sm. & Ab., have gradually decreased in number; these two species are evidently in a period of depression and, in all probability, will not be worth mentioning for a few years to come. Forest tent caterpillars were so scarce that they hardly deserve mention in a list of actually injurious pests.

VEGETABLES. In our vegetable gardens, the most conspicuous insect was again the cabbage butterfly (*Pieris rapæ,* Linn.). This year, as usual, it was largely distributed and worked havoc till the end of September. Next in importance would come the common cutworms (*Agrotis, Euxoa sp.*) which, in Portneuf county, severed a large number of cabbage and tobacco plants. During June we observed an outbreak of flea-beetles, *Epitrix cucumeris* Harris; for a fortnight they could be seen riddling the leaves of potatoes and tomatoes. Bordeaux mixture sprays drove them away in quick style, and. after all, the damage was smaller than last year. Cabbage and onion maggots (*Phorbia brassicæ* Bouche, P. *ceparum* Mg.) were reported at work in Quebec, Lotbinière and Portneuf counties; onions were the chief victims in most localities, but this could not be taken for a general outbreak, as the occurrence was only local and scattered over widely separated areas.

We may mention the return of an old offender, the old fashioned potato beetle, at Lac-au-Sable, county of Portneuf, which rapidly defoliated the potato plants during the last two weeks of June; this species, *Macrobasis unicolor* Kirby, was nowhere else observed. In July around Quebec city we have noticed an abundance of minute jumping insects belonging to the Thysanura group, which we identified as being *Smynthurus hortensis.* They occured in large numbers at night on beans, but the injury was only slight. Beans were chiefly attacked by garden slugs, which seem to have greatly increased in number since three years. They have a marked preference for moist and low soils. Due to their concentration in rather small sections ten days were sufficient for them to destroy entire bean plots covered with two week old plants. Two species, nearly equally represented, worked together, *Limax agrestis* and *L. campestris;* they also paid a visit later on to cabbages, turnips, cauliflowers and green peas, injuring the foliage or the pods. From Richmond we receive the information that wire-worms have seriously damaged the potato crop tunnelling the tubers, which later. were more suspectible to rot. White grubs were also observed to be numerous in many fields in Eastern Townships. For the first time, the writer collected a celery caterpillar in Quebec city; there was just one specimen.

FRUIT TREES. Early in spring, bud moths (*Tmetocera ocellana* D. & S.) killed a large percentage of buds in neglected family orchards and others not protected by sprays. The worst case was observed at Saint-Nicolas, six miles above Quebec city, along the Saint-Lawrence river. As a logical consequence of this outbreak, the crop has been greatly reduced. Codling moths (*Carpocapsa pomonella* Linn.) and apple maggots (*Rhagoletis pomonella* Walsh) were still numerous, though showing a slight decrease over last year. The same may be said for apple aphis (*Aphis pomi* De G.). We only had a few isolated cases of woolly aphis (*Schizoneura lanigera* Haus.) and none of a dangerous character. Among the late summer caterpillars the red-humped (*Schizura concinna* Sm. & Ab.) is the only one worth mention. Generally speaking, insects caused, this year, much less damage to fruits and fruit trees than fungous diseases.

Field Crops. The writer has inspected a field in lake Saint-John district where locusts (*Melanoplus atlanis* Riley) nearly swarmed especially on sandy hills. Damages were reduced to nothing as means of protection were applied in due time.

Flowers. Before closing these remarks I may mention the information given me by a florist, which I was unable to confirm myself. This florist says that an insect has destroyed a very high percentage of flower buds on dahlias. The insect he sends as representative of the pest is nothing but the tarnished plant bug (*Lygus pratensis* L.). I wonder if this is the real offender, as I personally had no opportunity to look after his case. A large number of dahlia plants did not flower at all and the whole trouble is attributed to this species by the gardener. I would be pleased to have the opinion of the members of this society on this point, if they have already met with the same injury and if *L. pratensis* is really the cause of the damage experienced.

THE ENTOMOLOGICAL RECORD, 1920.

Norman Criddle, Entomological Branch, Dominion Department of Agriculture, Ottawa.

The collecting season of 1920 appears to have been more varied than usual. In British Columbia collectors report it as generally unfavorable, especially for Lepidoptera. On the prairies there was not much variation from normal, excepting for the abundance of grasshoppers, while in the east insect life seems to have been rather more prevalent than usual.

Canadian entomologists will be pleased to learn that much progress has been made in arranging the National Collection of insects, under the able curatorship of Dr. McDunnough; as a result species in many families can now be determined much more quickly and accurately than was formerly possible.

It is gratifying also to know that Canadian collectors are recognizing the importance of placing types in the National Collection where they can be seen at a central point and where they are moreover comparatively safe from the dangers to which private collections are subject. A particularly notable addition to the Collection during the year was the acquisition of the Wolley-Dod Collection of Lepidoptera, generously willed to us by the late owner.

Our entomologists are again greatly indebted to specialists in the United States and Great Britain for assistance in determining specimens as well as for many other favors for all of which we express our grateful thanks.

Among the publications which have appeared during 1920, the following should be of special interest to Canadian students.

McDunnough, J. H. Studies in North American Cleorini (Geometridae). Bul. No. 18, Dom. Entomological Branch, Ottawa. This work is primarily a generic revision of a group of moths that were previously nearly all lumped under the genus *Cleora*. In it are described 16 new genera, and a generic key is provided on page 11. The bulletin comprises 64 pages including eleven plates of illustrations showing genitalia and other structural characters, in addition to a number of species.

Barnes, William and Busck, August. Contributions to the Natural History of the Lepidoptera of North America, Vol. IV, No. 3, 1920, entitled, Notes and New Species. This number is a continuation of the series previously issued under the authorship of Barnes and McDunnough, and deals with microlepidoptera. A number of new species are described, several being from Canada. There are three plates showing photographs of moths and twelve depicting the genitalia.

Hampson, Sir George. Catalogue of the Lepidoptera Phalaenae, Supplement, Vol. II, 1920, entitled, Catalogue of the Lithosidæ (Arctianae) and Phalaenoididae in the Collection of the British Museum. This volume is supplementary to Vol. III, and includes descriptions of the species described since the original volume was published, besides bringing other matter up to date. It is accompanied by the usual separate of colored plates and in every way maintains the reputation of previous volumes.

Carr, F. S. An Annotated List of the Coleoptera of Northern Alberta. Published by the Alberta Natural History Society, Red Deer, Alberta, 1920. This list will be welcomed by all who are interested in the distribution of North American Coleoptera. It is largely compiled from the personal collection of Mr. Carr made in the vicinity of Edmonton, and includes 525 species. Valuable notes on food plants are added.

Casey, Col. T. L. Memoirs on the Coleoptera IX. The New Era Publish--ing Company, Lancaster, Pa. This latest publication of Col. Casey contains : 1. A Revisional Study of the American Platyninae; II. Random studies among the American Caraboidea; III. Some descriptive Studies among the American Barinae. In this large work there are 527 pages of printed matter containing descriptions of approximately 650 new species or varieties of which several are recorded from Canada..

Blatchley, W. S. The Orthoptera of Northeastern America. The Nature Publishing Company, Indianapolis, Ind. This Book will be welcomed by all students of North American Orthoptera and especially by those residing within the territory covered by it. It contains keys and descriptions of all the species found in the "U. S. east of the Mississippi River and Canada east of the 90′ Meridian." It includes in all 353 species and 55 varieties. The work is clearly written and contains many text and other illustrations in black and white. The work is a necessary part of an Orthopterist's library.

Morse, Albert P. Manual of the Orthoptera of New England including the Locusts, Grasshoppers, Crickets, and their Allies. Proceedings of the Boston Society of Natural History, Vol. 35, No. 6, pp. 197-556, pl. 10-29. April, 1920.

This is a valuable contribution to a knowledge of the Orthoptera and as a work covering a limited area probably ranks alone in its thoroughness. The book is designed for the beginner as well as for the advanced student and is in consequence provided with careful anatomical descriptions accompanied by clear text figures. There are keys to the various genera and species followed by descriptions and often accompanied by figures. At the end of the book are 12 plates, six of them colored, showing adults and anatomical structures used in classifications. We believe that no orthopterist can afford to be without this Manual.

Banks, Nathan. A Revision of the Nearctic Termites with notes on Biology and Geographic Distribution by Thomas E. Snider. U. S. National Museum Bulletin 108, Washington, 1920. This work forms a complete treatise on the Termites found within the United States and Canada. The descriptions are accompanied by excellent drawings prepared chiefly by Miss Mary Carmody, under the guidance of Mr. Snider. Part 2, Biology, prepared by the junior writer, treats interestingly of the general habits of the insect, gives their distribution and provides a bibliography of the species.

COMSTOCK, J. H. An Introduction to Entomology. The Comstock Publishing Company, Ithaca, New York. This is the first part of a text book on entomology and it deals chiefly with the structure and metamorphosis of insects. There are 4 chapters under the following headings: I. The Characteristics of insects and their near relations; II. The External Anatomy of Insects; III. The Internal Anatomy of Insects; IV. The Metamorphosis of Insects. The work is illustrated by many text figures and is provided with an important bibliography. It comprises 220 pages.

RECORD OF CAPTURES.

Species preceded by an asterisk (*) described during 1920.

Lepidoptera.

(Arranged according to Barnes and McDunnough's Check List of the Lepidoptera of North America.)

Nymphalidæ.

186. *Argynnis eurynome* Edw. Miniota, Man.; Hugh Gibbon. New to Manitoba.

205. *Euphydryas colon* Edw. Blairmore, Alta.; June, (K. Bowman).

* *Strymon acadica* ab. *muskoka* Wat. and Comst. Gravenhurst, Muskoka, Ont.; July, 1918, (H. S. Parrish). Bull. Am. Mus. Nat. Hist. Vol. XLII, Dec., 1920.

Sphingidæ.

742. *Pholus labruscae* Linn. Winnipeg, Man.; Oct., 1920, (E. Webster).

Arctiidæ.

955. *Diacrisia vagans* Bdv. Blairmore, Alta.; June 1920, (K. Bowman).

957. *Isia isabella* A and S. Calgary, Alta.; June, 1920, (G. Salt).

987. *Apantesis blakei* Grt. Calgary, Alta.; July, 1920, (G. Salt).

989. *Apantesis phyllira* Dru. Lake of Bays, Ont.; Aug. 14, 1920, (J. McDunnough).

Noctuidæ.

1218. *Copablepharon alba* Harv. Lethbridge, Alta.; (E. H. Strickland).

1259. *Euxoa catenula* Grt. Lethbridge, Alta.; (E. H. Strickland).

1310. *Euxoa atropulverea* Sm. Blairmore, Alta.; Sept., 1920, (K. Bowman).

* *Euxoa scholastica* McD. Meach Lake, Que.; July, (C. H. Young); Ottawa, Ont.; Aug. 1904; Trenton, Ont.; July, (J. D. Evans). Can. Ent. Vol. LII, Nos. 6-7, 1920.

1459. *Agrotis atrata* Morr. Larder Lake, Ont.; July, 1920, (H. C. Cook). New to Canada.

2022. *Oncocnemis albifasciata* Hamp. Lethbridge, Alta.; (E. H. Strickland).

2043. *Oncocnemis augustus* Harv. Lethbridge, Alta.; (E. H. Strickland).

* *Feralia deceptiva*, McD. Vancouver, B.C.; April, (Bush.). Can. Ent. Vol. LII, Nos. 6-7, 1920.

2215. *Conistra fringata* B. & McD. Salmon Arm, B.C. ; (W. R. Buckell). New to Canada.

2362. *Eremobia alticola* Sm. Cadomin, Alta.; Aug.; (K. Bowman).

2596. *Crambodes talidiformis* Gn. Lethbridge. Alta.; (E. H. Strickland).

3057. *Catoçala verecunda* Hlst. Lethbridge, Alta. ; (E. H. Strickland).

* *Caenurgia erechtea* form *parva* Blackmore. Victoria, B.C.; April-May; (E. H. Blackmore). Can. Ent. Vol. LII, No. 11, 1920.

3555. *Capis curvata* Grt. Aweme. Man.; June, 1920; (Criddle).

3576. *Lomanaltes eductalis* Wlk. Edmonton, Alta.; July, 1920. (D. Mackie).

Lymantriidæ.

3712. *Olene vagans* B. & McD. Aweme, Man.; July, 1920. (Criddle).

Lasiocampidæ.

* *Tolype dayi* Blackm. Quamichan Lake, Sept. ; (G. O. Day) ; Slugget, Sept.; (W. Downes) ; Victoria, Sept.; (Blackmore) ; All on Vancouver Island, B.C. Can. Ent. Vol. LII, No. 12, 1920.

Geometridæ.

3945. *Carsia paludata* Thun. Edmonton, Alta., August, (D. Mackie).

* *Eustroma nubilata* form *macdunnoughi* Blackm. Rossdale, June, (Blackmore). Goldstream and Vancouver, (Blackmore), Vancouver, (R. V. Harvey), Chilliwack, (W. B. Anderson). Fraser Mills, (L. E. Marmont). All B.C. Can. Ent., Vol. LII, No. 12, 1920.

* *Lobophora simsata* Swett. Victoria, B.C., May, (Blackmore), Duncans, B.C., May, (Livingston), Wabasha River, Alta., June, Edmonton, Alta., (Swett). Lepidopterist, Vol. III, Nos. 4 and 5, 1920.

3977. *Lygris diversilineata* Hbn. Calgary, Alta., August, (K. Bowman).

Lygris propulsata Wlk. Edmonton, Alta., July-August, (K. Bowman).

* *Dysstroma sobria* form *Swetti* Blackm. Victoria, B.C., June, (Blackmore). Can. Ent., Vol. LII, No. 12, 1920.

Hydriomena macdunnoughi Swett. Nordegg and Cadomin, Alta.; May, (K. Bowman).

* *Xanthorhoe ramaria* Swett and Cassino. Rama, Lab., 1899, (Strecker and Sornburg Col).

* *Xanthorhoe reclivisata* Swett and Cassino. Lake Louise, Laggan. Alta.. July, 1904, (Wolley-Dod).

* *Xanthorhoe dodata* Swett and Cassino. Emerald Lake, (Woolley-Dod.) Pocahontas, (K. Bowman).

* *Xanthorhoe incurvata laggana̲ta* Swett and Cassino. Laggan and Field, Alta, (Wolley-Dod) ; Nordegg, July. (K. Bowman).

The above four species described in Lepidopterist, Vol. III, Nos. 3 and 4, 1920.

* *Orthonama evansi* McD. Trenton, Ont., (J. D. Evans), Hull, Que., Can. Ent. Vol. LII, No. 12, 1920.

* *Eulype albodecorata* Blackm. Gold Stream, B.C., May-June, (Blackmore). Can. Ent. Vol. LII, No. 2, 1919.

* *Eupithecia moirata* Swett and Cassino. Penticton, B.C., April, 1913, (Blackmore). Lepidopterist, Vol. III, No. 2, 1919.

4156. *Eupithecia palpata* Pack. Edmonton, Alta., June, (K. Bowman).

* *Eupithecia probata* Swett and Cassino. Duncans, B.C., (Livingston). Victoria, B.C., March-April, 1916, (Blackmore). Lepidopterist Vol. III, No. 2, 1919.

4401. *Itame occiduaria* Pack. Nordegg, Alta., July, (K. Bowman).

4424. *Itame decorata* Hlst. Calgary, Alta., July-August, (G. Salt).

4568. *Cleora manitoba* Grossb. Larder Lake, Ont., July, 16, 1920, (H. C. Cook). New to Ontario.

4644. *Sicya macularia agyllaria* Walk. Nordegg, Alta., (August); Banff, Cadomin, Alta., (K. Bowman).

4711. *Selenia alciphearia* Wlk. Aweme, Man., June, (E. Criddle).

4726. *Metanema quercivoraria* Gn. Nordegg, Alta., July, 1920, (K. Bowman).

4748. *Pero occidentalis* Hlst. Pocahontas, and Nordegg, Alta., June, (K. Bowman).

Pyralidæ.

5097. *Phlyctaenia indistinctalis* Warr. Nordegg, Alta., July, (K. Bowman).

5102. *Phlyctaenia tertialis* Gn. Edmonton, Alta., Nordegg, Alta., July, (K. Bowman).

Pyrausta nubilalis Hbn. South West Ontario, (Simpson and Keenan).

Cornifrons simalis Grt. Lethbridge, Alta., (Strickland).

* *Herculia florencealis* Blackm. Rossland, B.C., July, (W. H. Danby). Can. Ent. Vol. LII, No. 12, 1920.

5322. *Prionapteryx nebulifera* Steph. Aweme East, July 7, 1920, (E. and N. Criddle).

5403. *Thaumatopsis pexellus coloradellus* Kearf. Lethbridge, Alta., (Strickland).

5591. *Ambesa laetella* Grt. Lethbridge, Alta., (Strickland).

5689. *Lipographis leoninella* Pack. Aweme, Man., August, 1920, (Criddle).

5694. *Melitara dentata* Grt. Lethbridge, Alta., (Strickland).

5739. *Staudingeria albipenella* Hlst. Lethbridge, Alta., (Strickland).

5743. *Hulstia undulatella* Clem. Lethbridge, Alta., (Strickland).

Pterophoridæ.

5862. *Platyptilia edwardsi* Fish. Mt. Cheam, B.C., August, (Bush).

5932. *Pterophorus brucei* Fern. Aweme, Man., March, 1920, (Criddle).

5934. *Pterophorus grisescens* Wlshm. Lillooet, B.C., June, (A. Phair).

5946. *Stenoptilia exclamationis* Wlshm. Trenton, Ont., August, (J. D. Evans).

Gelechiidæ.

* *Gelecia psiloptera* B. and B. Meach Lake, Que., (J. McDunnough). Cont. Nat. Hist. Lep. Vol. IV, No. 3, 1920.

Eucosmidæ.

6866. *Argyroploce glaciana* Moesch. Laird River, Y.T., at mouth of Poplar River, July, 1919, (E. J. Whittaker).

* *Laspeyresia novimundi* Hein. Previously referred to as *L. nigricana* Steph. Wide spread in Canada as a pea pest and in wild vetches. Can. Ent. Vol. LII, No. 11, 1920.

6878. *Pseudogalleria inimicella* Zell. Aweme, Man., June, 1920, (Criddle).

Tortricidæ.

7308. *Sparganothis vocaridorsana* Kearf. Lethbridge, Alta., (Strickland).

* *Cacoecia hewittana* Busck. Sydney, N.S., (Mrs. S. J. Harrington). Bred from raspberry by A. Gibson. Can. Ent. Vol. LII, No. 6, 1920.

* *Tortrix invidana* B. and B. Duncans, B.C., (Hanham), also Victoria, B.C.

* *Tortrix dimorphana* B. and B. Duncans, B.C., (Hanham).

* *Peronea maximana* B. and B. Vancouver, B. C., (Hanham), Victoria, B.C., (J. Croker).

* *Peronea fuscana* B. and B. Aweme, Man., (Criddle).

* *Peronea stadiana* B. and B. Ottawa, Ont., (C. H. Young). The above five species described by Barnes and Busck. Cont. Nat. Hist. Lep. Vol. IV, No. 3, 1920.

Haploptilidæ.

* *Haploptilia atlantica* Hein. Trenton, Ont., (J. D. Evans). Proc. Ent. Soc. Wash. Vol. 22, No. 7, 1920.

Coleoptera.

Arranged according to Henshaw's List of Coleoptera of America, North of Mexico.

Cincindelidæ.

Cicendela lengi var. *versuta* Csy. Chilcotin, B.C., August, (E. R. Buckell). New to B.C.

* *Cicindela repanda edmontonensis* Carr. Edmonton, Alta., August 21, 1919, (F. S. Carr). Can. Ent. Vol. LII, No. 10, 1920.

Carabidæ.

86. *Cychrus elevatus* Fab. Onah, Man; July, 1919 (Criddle and Roberts). Apparently a small race.

96. *Cychrus marginatus* Fisch. Peachland, B.C., August 27, 1919, (W. Metcalfe).

147. *Calasoma wilkesii* Lec. Peachland, B.C., August 17, 1919, (Metcalfe and Wallis).

* *Callisthenes* (*Calosoma*) *reflexus* Coq. "Northern Rocky Mountains Region." Mem. Col. IX, 1920.

156. *Elaphrus lecontei* Cr. Beaver Lake, Alta., July, 1907, (A. Halkett).

373. *Bembidium obtusangulus* Lec. Baldur, Man., May 25, 1920, (Criddle and Vroom). New to Manitoba.

396. *Bembidium ephippiger* Lec. Baldur, Man; May 25, 1920, (Criddle and Vroom). New to Manitoba.

Bembidium henshawi Hayd. Baldur, Man., May 25, 1920, (Criddle and Vroom).

403. *Bembidium scudderi* Lec. Baldur. Man., May 25th. 1920, (Criddle and Vroom).

431. *Tachys vittiger* Lec. Baldur, Man., May 25th, 1920 (Criddle and (Vroom).

* *Brennus columbianus* Csy. Victoria, B.C. Mem. Col. IX, 1920.

* *Cryobius patulus* Csy. Stikine River, B.C., (Wickham). Mem. Col. IX., 1920.

Amara coelebs Howe. Cawston. B.C., October, 21, 1919, (W. Metcalfe)

* *Diplochila modesta* Csy. Montreal, Que. Mem. Col. IX. 1920.

* *Diplochila undulata* Carr. Edmonton, Alta., May 10, 1919, (F. S. Carr). Can. Ent. Vol. LII, No. 10, 1920.
* *Platynus puncticeps* Csy. Ontario, Can.
* *Platynus turbidus* Csy. Winnipeg, Man., (Wickham).
* *Platynus distinguendus* Csy. Ontario, Can.
* *Platynus frigidulus* Csy. Stikine River, B. C., (Wickham).
* *Platynus fragilissimus* Csy. Toronto, Ont., (Wickham).
* *Platynus insulina* Csy. Victoria, B.C., (Wickham).
* *Platynus suffusum* Csy. Agassiz, B.C.
* *Platynus symmetricus* Csy. Vernon, B. C.

The above 9 species described in Mem. Col. IX, 1920.

* *Chlaenius frostii* Carr. Edmonton, Alta., May 11, 1918, (F. S. Carr). Can. Ent. Vol. LII, No. 10, 1920.
1059. *Agonoderus lineola* Fab. Baldur, Man., May 25, 1920, (N. Criddle).
1103. *Harpalus carbonatus* Lec. Baldur, Man., May 25, 1920, (Paul N. Vroom).
1164. *Tachycellus nigrinus* Dej. Peachland, B.C., July 27, 1919, (W. Metcalf).

Dytiscidæ.

Coelambus dispar Lec. Le Pas, Man., June 30, 1917, (J. B. Wallis).
Hydroporus appalachius Sherm. Mile 332, H. B. Railway, Man., July 18, 1917, Winnipeg, June 26th, 1820, (Wallis)., Aweme, East, July 10, 1920; (Wallis and Roberts).
1331. *Hydroporus septentrionalis* Gyll. Mile 332, H. B. Railway, Man., July 13, 1917, (J. B. Wallis). New to Manitoba.
1338. *Hydroporus solitarius* Sharp. Mile 214, H. B. Railway, Man., (J. B. Wallis). New to Manitoba.
Hydroporus congruus Lec. Peachland, B. C., July 27, 1909, (J. B. Wallis). Previously identified as *rivalis* var. by C. H. Roberts.
Hydroporus obesus Lec. var. Peachland, B. C. July 27, 1919, (J. B. Wallis).
1342. *Hydroporus occidentalis* Sharp. Peachland, B. C. August 7, 1919 (J. B. Wallis).
1344. *Hydroporus obscurus* Sturm. Miles 214 and 332; H. B. Railway, Man., July, 1917, (J. B. Wallis).
1345. *Hydroporus tenebrosus* Lec. Winnipeg, Mile 214, H. B. R., Man., (Wallis). Previously recorded as *rusticus,* (J. B. W.).
Hydroporus dispectus Sharp. Peachland, B. C., August, 1919; (Wallis), Foulder, B. C., (S. Criddle).
1346. *Hydroporus signatus* Mann. Mile 332, H. B. Railway, Man., July, 1917, (J. B. Wallis). New to Manitoba.
1348. *Hydroporus glabriusculus* Aub. Mile 256-332, H. B. Ry., Man., July, 1917, and Winnipeg, August 7, 1920, (J. B. Wallis). New to Manitoba.
1351. *Hydroporus notabilis* Lec. Stony Mountain, Man., June, Miami, Man., October, Mile 332, H.B.Ry., July 18, 1917, (J. B. Wallis). New to Manitoba.

Hydroporus striola Gyll. (*vittula* Er.) Mile 214-332, H.B. Ry., Man., August, Onah, Man., July; Stonewall, Man., April; Peachland, B.C., August 7, 1919, (J. B. Wallis). New to Manitoba.

1352. *Hydroporus tristis* Payk. Peachland, B.C., August 7, 1919, (J. B. (Wallis).

1356. *Hydroporus humeralis* Aube. Peachland, B.C., August 17, 1919, (J. B. Wallis).

1361. *Hydroporus niger* Say. St. Norbert, Man., September; Onah, Man., July; Stonewall, Man., September 20, 1919, (J. B. Wallis). New to Manitoba.

1367. *Hydroporus stagnalis* G. and H. Stonewall, Man., September 18, 1920, (J. B. Wallis). New to Manitoba.

Hydroporus conoideus Lec. Winnipeg, April, Aweme East, July 10, 1920, (J. B. Wallis); previously recorded, (teste C. H. Roberts) as *oblongus* Steph.

9297. *Hydroporus fuscipennis* Schaum. Peachland, B. C., August 7, 1919, (J. B. Wallis).

All the above species have been submitted to Dr. Fall who is revising the group.

Gyrinidæ.

1519. *Gyrinus affinis* Aube. Cawston, B.C., April 29, 1917, (W. R. S. Metcalf).

1529. *Gyrinus picipes* Aube. Cawston, B. C., April 17-29, 1917, (W. R. S. Metcalf).

Hydrophilidæ.

1683. *Cercyon granarius* Er. Stonewall, Man., August 18, 1918. In fungus,—(J. B. Wallis).

Silphidæ.

1698. *Cecrophorus marginatus* Fab. Lethbridge, Alta., September 22, 1920, (E. H. Strickland); Red Deer River, September 11, 1917, (C. H. Young).

1782. *Liodes globosa Lec.* Winnipeg, Man., June 15, 1918, (L. Roberts). New to Manitoba.

Staphylinidæ.

2101. *Quedius sublimbatus* Makl. St. Norbert, Man., August 24, 1917, (J. B. Wallis). Previously taken at Hudson Bay by Dr. Bell.

2150. *Philonthus furvus Nord.* Stoney Mountain, April 21, 1916, (Wallis).

Leptacinus, (Leptacinodes) flavipes Lec. Winnipeg: September 2, 1916, (J. B. Wallis). New to Manitoba.

2270. *Xantholinus obsidianus* Melsh. Miami, Man., July 27, 1916, (J. B. Wallis).

2325. *Stenus pettiti* Csy. Onah, Man., July 11, 1918, (Wallis). New to Manitoba.

2329. *Stenus rugifer* Csy. Winnipeg, July, 1917, (L. Roberts).
Treesbank, Man., July 18, 1918, (Wallis). New to Manitoba.

2376. *Stenus colonus* Er. Treesbank, Man., July, 1918, (Wallis). New to Manitoba.

2384. *Stenus egenus* Er. Victoria Beach, Man., August 7th, 1916, (Wallis). New to Manitoba.

2396. *Stenus rigidus* Csy. Winnipeg, June 10, 1916, (Wallis). New to Manitoba.

2435. *Stenus advena* Csy. Husavick, Man., July, (Roberts); Rosebank, Man., July; Onah, Man., July, 1913, (Wallis). New to Manitoba.

Stilicus hanhami Wick. Winnipeg; May 1, 1916, (Roberts).

2560. *Trachysectus confluens* Say. Birds Hill, Man., May 3, 1917, (Wallis).

2679. *Habrocerus schwarzi* Horn. Stoney Mountain, Man., August, 18, 1918; (Wallis). In rotten fungus; new to Manitoba.

Erotylidæ.

3200. *Languria mozardi* Lec. Aweme, Man., September, 1920, (E. Criddle).

Histeridæ.

3625. *Saprinus petruelis* Lec. Aweme East, July, 1920, (Criddle and Wallis); New to Manitoba.

Heteroceridæ.

* *Heterocerus moleculus* Fall. Aweme, Man., July-September, 1917, (Wallis and Criddle). Can. Ent. Vol. LII. No. 9, 1920.

* *Heterocerus canadensis* Fall. Thornhill, Man., July 1, 1916, (Wallis). Can Ent. Vol. LII. No. 9, 1920.

Elateridæ.

4083. *Adelocera profusa* Cond. Peachland, B. C., July, 1919, (Wallis).

4161. *Cryptohypnus pectoralis* Say. Husavick, Man., July 4, 1918, (L. Roberts).

4218. *Elater nigrinus* Payk. Calgary, Alta., May 20, 1915, (Tams).

4220. *Elater pullus* Germ. Aweme, Man., May 2, 1920, (Criddle).

4496. *Corymbites inflatus* Say. Calgary, Alta., May 20, 1915, (Tams).

4504. *Asaphes dilatricollis* Mots. Peachland, B. C. August, 1919, (Wallis).

Buprestidæ.

4631. *Anthaxia viridicornis* Say. Aweme, East, July 6, 1920, (Criddle).

* *Agrilus criddlei* Frost. Aweme, Man., June, (Criddle). Can. Ent. Vol. LII, No 11, 1920.

Ptinidæ.

* *Hadrobregmus subconnatus* Fall. Aweme, Man., June, 1919-20, (N. and E. Criddle). In rotten spruce. Can. Ent. Vol. LII. No. 9. 1920.

Cisidæ.

Dolichocis manitoba Dury. Victoria, B.C., May, (W. B. Anderson). New to B. C.

Plisiocis cribrum Csy. Saanich, B. C., September 10, 1918, (W. Downes). New to B. C.

Scarabæidæ.

* *Aphodius canadensis* Garrett. Cranbrook. B.C., May-July, Crows Nest, B.C., April-May, (Garrett). Can. Ent. Vol. LII. Nos. 6-7, 1920.

5682. *Serica curvata* Lec. Onah, Man., July, (Wallis, Roberts and Criddle), Aweme, Man., (Criddle).

5705. *Diplotaxis obscura* Lec. Cawston, B. C., August, 1917, (W. Metcalf).

5739. *Lachnosterna lanceolata* Say. Aweme East, Man., July, 1920, (Wallis, Criddle, Roberts, Vroom, Robertson). New to Canada.

5796. *Lachnosterna tristis* Fab. Vernon, B.C., April, 1920, (R. Hoppy). New to Canada.

Cerambycidæ.

5992. *Hylotrupes ligneus* Fab. Peterborough, Ont., (F. J. A. Morris).
6351. *Leptura octonotata* Say. Peterborough, Ont., (F. J. A. Morris).
6487. *Saperda puncticollis* Say. Peterborough, Ont., (F. J. A. Morris). From Virginia creeper.

Chrysomelidæ.

* *Donacia serricauda* Schaeff. British Columbia. Jour. N.Y. Ent. Soc. Vol. XXVII, No. 4, 1920.
* *Donacia tuberculifrons* Schaeff. Toronto, Ont., Jour. N.Y. Ent. Soc. Vol. XXVII, No. 4, 1920.
10,337. *Syneta hamata* Horp. Okuty Falls, B. C., (Hanham).
6785. *Doryphora clivicollis* Kby. Teulon, Man., July, 1918, (F. Pandier).
* *Lina* (*Malosoma*) *immaculata* Schaeff. British Columbia, (Chas. Weidt). Jour. N. Y. Ent. Soc. Vol. XXVII, No. 4, 1920.
6964. *Haltica inaerata* Lec. Husavick, Man., July, 1917, (L. H. Roberts). New to Manitoba.
Haltica carni Woods. Husavick, Man., July, 1915, (L. H. Roberts). New to Manitoba.
6967. *Haltica torquata* Lec. British Columbia. (Taylor Col.).
* *Haltica heucherae* Fall. Aweme Man., May, September, (N. and E. Criddle). On *Heuchera hispida*. Psyche, Vol. XXVII, October, 1920.
6971. *Haltica foliacea Lec.* Onah, Aweme, Stockton, Lyleton, Man., (Wallis and Criddle). On *Oenothera* and *Epilobium*. Previously recorded as *punctipennis* Lec.
Cassida flaveola Thunb. Mile 17, H. B. Ry., Man., July 2, 1917, (Wallis).
9097. *Cassida nigripes* Oliv. Winnipeg, Man., (F. Dolman).

Tenebrionidæ.

7226a. *Phellopsis parcata* Lec. Peachland, B. C., August 12, 1919, (Wallis).

Cistelidæ.

7594. *Hymenorus niger* Melsh. Winnipeg, June, 24. 1919, (Wallis).
7631. *Androchirus erythropus* Kby. Aweme, Man., 1920, (Criddle).

Mordellidæ.

7761. *Penturia trifasciata* Melsh. Aweme, Man., July 15, 1918, (Wallis).
7811. *Mordellistena pallipes* Sm. Aweme, Man., July, 15, 1918, (Wallis).
7847. *Mordellistena marginalis* Melsh. Aweme, Man., 1919, (Criddle).
7852. *Mordellistena bihamata* Melsh. Aweme, Man., 1919, (Criddle).

Anthicidæ.

7943. *Anthicus californicus* Laf. Baldur, Man., May, 1920, (Criddle and Vroom).

Meloidæ.

8026. *Nemognatha lutea* Lec. Waskada, Lyleton, Lauder, and Melita, Man., July, (Criddle). New to Manitoba.
8037. *Nemognatha immaculata* Say. Melita and Pipestone, Man., July, 1920, (Criddle and Vroom). New to Manitoba.

8083. *Epicauta ferruginea* Say. Ninga, Man., July, 1920, (Criddle and Vroom).

8158. *Cantharis sphaericollis* Say. Hartney to Boissevain and Westward, July-August, (Criddle and Vroom).

Curculionidæ.

8525. *Cleonus carinicollis* Lec. Aweme East, July 9, 1920, (E. Criddle).

* *Elleschus borealis* Carr. Edmonton, Alta., May 24, 1919. (F. S. Carr). Can. Ent. Vol. LII, No. 10, 1920.

8827. *Auleutes epilobii* Payk. Aweme, Man., June 3, 1920, (Criddle).

* *Centrinogyna canadensis* Csy. Winnipeg, Man., (Hanham). Mem. Col. IX, 1920.

Anthribidæ.

* *Allandrus brevicornis* Frost. Edmonton, Alta., July 30, 1916, (F. S. Carr). Can. Ent. Vol. LII, No. 11, 1920.

Diptera.

(Arranged according to the Catalogue of North America Diptera by J. M. Aldrich. The numbers refer to the pages.)

Tipulidæ.

* *Dicranomyia terrae-novae* Alex. Spruce Brook, Newfoundland, (G. E. Englehardt). Jour. Ent. and Zool. Vol. 12. No. 4, 1920.

87. *Chionea vulga* Harr. Mara, B. C., March, 1920, 8000 feet, (R. C. Treherne).

* *Limnophila adjuncta* Dietz. Eastern Harbour, Cape Breton Isl., July, 1917, (G. A. Huntsman).

* *Limnophila magdalena* Dietz. Amherst Isl., Magdalen Isl., Que., July, 1917, (G. A. Huntsman).

* *Tipula huntsmaniana* Dietz. Eastern Harbour, Cape Breton Isl., N. S.

The above three species described in Can. Ent. Vol. LII, No. 1, 1920.

Culicidæ.

* *Aedes leuconotips* Dyar. Prince Rupert, B.C., May, 1919, (H. G. Dyar).

* *Aedes cyclocerculus* Dyar. Prince Rupert, B C., May, 1919, (H. G. Dyar).

* *Aedes callithotrys* Dyar. White Horse, Yukon Ter., June, 1919, (H. G. Dyar).

* *Aedes mercurator* Dyar. Dawson, Yukon Territory, (H. G. Dyar).

* *Aedes stimulans albertae* Dyar. Edmonton, Alta., May, 1919, (H. G. Dyar).

The above mosquitoes described in Ins. Ins. Mens., Vol. VIII, No. 1-3, 1920.

Stratiomyidæ.

* *Euparyphus pretiosa* Banks. Vancouver, B.C. Can. Ent. Vol. LII, No. 3, 1920.

Tabanidæ.

195. *Chrysops callidus* O. S. Aweme, Man., July, 1920, (Criddle).

196. *Chrysops discalis* Will. Baldur, Man., July, 1920, (Criddle and Vroom).

196. *Chrysops fallax* O.S. Simcoe, Ont., July, 1915.

Bombyliidæ.

221. *Spogostylum vandykei* Coq. Osoyoos, B. C., June, 1919, (W. B. Anderson).

222. *Spogostylum albofasciatum* Macq. Hull, Que., Ottawa, Ont., Trenton, Ont., (Evans); Lake of Bays, Ont., (McDunnough); Aweme, Man., (Criddle and H. A. Robertson).

223. *Spogostylum simson* Fab. Jordan, Ont., September, 1917, (W. A. Ross).

223. *Spogostylum varium* Fab. Lillooet, B. C., July, 1918, (A. W. Phair).

225. *Exoprosopa caliptera* Say. Aweme, Man., July-August, (Criddle); Lethbridge, Alta., July, (Wallis); Lillooet, B. C., June., (A. W. A. Phair).

225. *Exoprosopa capucina* Fab. Sudbury, Ont., August, 1889, (Evans Coll.).

Exoprosopa decora Loew. Aweme and Melita, Man., (Criddle and Vroom); Lethbridge, (J. B. Wallis); Princeton, B.C., (W. B. Anderson); Peachland, B.C., (J. B. Wallis).

225. *Exoprosopa doris* O. S. Osoyoos, B. C., June, 1919. (Buckell).

225. *Exoprosopa eremita* O. S. Victoria, B. C., July, 1912, (J. B. Wallis).

225. *Exoprosopa fascipennis* Say. Treesbank, Man., July, (Wallis).

Exoprosopa grata Coq. Osoyoos, B. C., June, 1919., (Anderson and Buckell).

227. *Anthrax alpha* O. S. Lethbridge, Alta., August, 1912, (J. B. Wallis).

229. *Anthrax bigradata* Loew. Aweme, Man., (Fletcher); Aweme East, June., (S. Criddle).

229. *Anthrax catulina* Coq. Kamloops, B. C., May, (W. B. Anderson); Ebert, B. C., June, (N. Chrystal).

Anthrax fenestratoides Coq. Aweme, Man., July, 1920, (P. Vroom); Princeton, B. C., July, 1919., (W. B. Anderson).

Anthrax lepidota O.S. Fairview, B.C., August, 1919, (E. R. Buckell).

233. *Anthrax nugator* Coq. Osoyoos, B. C., June, 1919, (W. B. Anderson).

233. *Anthrax pretiosa* Coq. Penticton, B. C., (E. R. Buckell); Peachland, B. C. (Wallis); Lillooet, B. C., (Anderson).

234. *Anthrax serpentina* O. S. Peachland, (Wallis); Fairview, (Buckland).

Anthrax webberi Johns. Chelsea, Que., (C. H. Young); Bellville, Ont., (Evans); Norway Pt., Lake of Bays, Ont., (J. McDunnough).

234. *Anthrax willistonii* Coq. Aweme, Man. 1904, (Fletcher); 1920, (Criddle and Vroom); Fairview, B. C., (Buckell); Williams Lake, B. C., (Anderson).

235. *Bombylius albicapillus* Loew. Victoria, B. C., (A. W. Hanham).

235. *Bombylius aurifer* O. S. Banff, Alta., (N. B. Sanson); Cranbrook, B. C., (C. B. Garrett).

238. *Ploas atratula* Loew. Vernon, B.C., May.

238. *Ploas nigripennis* Loew. Goldstream, B.C., July, 1998.

238. *Ploas serrata* Coq. Victoria, B. C., (A. W. Hanham).

240. *Lepidophora aegeriiformis* West. Sudbury, Ont., (J. D. Evans).

Geron senilis Fab. Fairview, B. C., August, 1919, (E. R. Buckell).

Therevidæ.

247. *Psilocephala pectipennis* Wied. Toronto, Ont. July, 1911, (M. C. Van Duzee).

256. *Stenopogon californiae* Walk. Penticton, B. C., June, 1919, and Lillooet, B. C., (Anderson).

Asilidæ.

258. *Myelaphus lobicornis* O.S. Invermear, B.C., June, (F. W. L. Sladen).
259. *Dioctria sackeni* Wills. Buccaneer Bay, B.C., July, (Treherne); Ebert. B. C., (Chrystal); Cowichan, B. C., July, (W. Downes).
259. *Cyrtopogon bimacula* Walk. Truro, N.S., Gaspé, Que., (C. H. Young); Sudbury, Ont., (Evans).
260. *Cyrtopogon maculosus* Coq. Penticton, B.C., April, (E. R. Buckell).
260. *Cyrtopogon montanus* Loew. Banff Alta., (Hewitt and Sanson).
260. *Cyrtopogon nugator* O.S. Banff, Alta., June, (Hewitt); July, (Sanson).
260. *Cyrtopogon varipennis* Coq. Royal Oak, Duncan and Victoria, B. C., (R. C. Treherne).
260. *Lasiopogon cinereus* Cole. Banff, Alta., (N. B. Sanson).
262. *Stichopogon trifasciatus* Say. Ottawa, (W. Metcalf); Severn, Ont., (C. H. Curran); Aweme, Man., (Fletcher, Criddle and Vroom).
267. *Nicocles dives* Loew. Royal Oak, B.C., May, 1917, (Treherne).
271. *Dasyllis californica* Banks. Vancouver, B. C., (R. V. Harvey). Agassiz, B. C., (Treherne).
271. *Dasyllis fernaldi* Banks. Kelso, B. C., (Fletcher); Vancouver, B. C., (Anderson); Royal Oak. (W. Downes).
271. *Dasyllis partitor* Banks. Banff Alta., (Sanson); Peachland, B. C., (Wallis); Penticton, B. C., (E. R. Buckell).
271. *Dasyllis insignis* Banks. Qu'Appelle, Sask., July, (A.Halkett).
272. *Laphria janus* McA. Ft. Coulonge, Que., (J. I. Beaulne); Kazabazua, Que., (F. W. L. Sladen); Chelsea, Que., (Fletcher); Sudbury, Ont., (Evans); Aweme, Man., (Fletcher and Criddle); Miami, Man., (Wallis); Banff, Alta., (Sanson); Kaslo, B. C., (Cockle).
272. *Laphria felis* O. S. Kaslo, B. C., June, 1906, (J. C. Cockle).
272. *Laphria ferox* Willst. Banff, Alta., October, (N. B. Sanson).
    Laphria gilva Linn. Peachland. B. C., July, (J. B. Wallis).
275. *Erax bicaudatus* Hine. Lethbridge, Alta., August, (Wallis).

Dolichopodidæ.

284. *Psilopus caudatus* Wied. Toronto, Ont., 1912. (M. C. Van Duzee).
285. *Psilopus patibulatus* Say. Ridgeway, Ont., July, (Van Duzee).
286. *Psilopus scobinator* Loew. Montreal, Que., (Beaulieu).
287. *Psilopus unifasciatus* Say. Ridgeway, Ont., June, (Van Duzee).
287. *Psilopus scintillans* Loew. Ridgeway, Ont., September, (Van Duzee).
288. *Diaphorus opacus* Loew. Joliette, Que., July, St. Louis, Que., August, (J. Ouellet).
    Diaphorus leucostoma Loew. Ridgeway, Ont., July, (Van Duzee).
    Diaphorus gibbosus VanD. St. Remi, Que., July, (J. Ouellet).
288. *Diaphorus palpiger* Wheel. Toronto, Ont., 1911, (Van Duzee).
289. *Chrysotus affinis* Loew. St Remi and Montreal, June, (Jas. Ouellet).
    Chrysotus ciliatus Mall. Ft. Erie, Ont., June, (Van Duzee).
290. *Chrysotus picticornis* Loew. Ft. Erie, Ont., June, (Van Duzee).
290. *Campsicnemus hirtipes* Loew. Ridgeway, Ont., June, (Van Duzee)
291. *Argyra calcitrans* Loew. Ridgeway, Ont., June, (Van Duzee).

291. *Porphyrops effilatus* Wheel. Toronto, Ont., July, (Van Duzee).
291. *Porphyrops melampus* Loew. Toronto, Ont., June, (Van Duzee).
294. *Xanthina helvinus* Loew. Ridgeway, Ont., July, (Van Duzee).
Neurigona maculata Van D. Joliette, Que., July, (Van Duzee).
296. *Medeterus veles* Loew. Chatham, Ont., June, (Van Duzee).
296. *Medeterus nigripes* Loew. Ridgeway, Ont., July, (Van Duzee).
297. *Scellus exustus* Walk. Ridgeway, Ont., June, 1919, (Van Duzee).
297. *Hydrophorus aestuum* Loew. Ft. Erie, Ont., July, (Van Duzee).
297. *Hydrophorus pirata* Loew. Mount Royal, Que., September.
298. *Liancalus genualis* Loew. Niagara Falls, Ont., (Van Duzee).
299. *Dolichopus acuminatus* Loew. Montreal and St. Louis, Que., July, (Jas. Ouellet).
299. *Dolichopus bifractus* Loew. Ridgeway, Ont., August, (Van Duzee).
299. *Dolichopus batillifer* Loew. Joliette, Que., July, (J. Ouellet).
300. *Dolichopus calcaratus* Ald. Kearney, Ont., (Van Duzee).
301. *Dolichopus cuprinus* Wied. Bond Lake, Ont., July, 1919, (Van Duzee).
301. *Dolichopus dakotensis* Ald. Ridgeway. Ont., June, 1919. (Van Duzee).
301. *Dolichopus discifer* Stan. Montreal, Que.. May. (J. Ouellet).
301. *Dolichopus fulvipes* Loew. Ridgeway, Ont., July, (Van Duzee).
301. *Dolichopus gratus* Loew. Toronto, Ont., June, 1918, (Van Duzee).
302. *Dolichopus longimanus* Loew. Kearney. Ont.. June. (Van Duzee).
303. *Dolichopus occidentalis* Ald. Nanaimo. B.C., June, 1920, (Van Duzee).
304. *Dolichopus ramifer* Loew. Ft. Erie, Ont., May, (Van Duzee).
304. *Dolichopus scapularis* Loew. Kearney, Ont., July, (Van Duzee).
304. *Dolichopus setifer* Loew. Niagara Falls, Ont., September, (Van Duzee).
304. *Dolichopus sincerus* Melan. Elmsdale, Ont., July. (Van Duzee).
304. *Dolichopus splendidus* Loew. Ridgeway, Ont., June, (Van Duzee).
305. *Dolichopus terminalis* Loew. Ridgeway, Ont., July, (Van Duzee).
305. *Dolichopus variabilis* Loew. Brule Lake, Ont., August, (Van Duzee).
305. *Dolichopus vigilans* Ald. Ft. Erie, Ont., July, (Van Duzee).
305. *Dolichopus vittatus* Loew. Ridgeway, Ont., June, (Van Duzee).
305. *Gymnopterus crassicauda* Loew. Ft. Erie, Ont., June, (Van Duzee).
305. *Gymnopterus flavus* Loew. Niagara Falls, Ont., July, (Van Duzee).
305. *Gymnopterus frequens* Loew. Montreal, Que., June, (J. Ouellet).
305. *Gymnopterus despicatus* Loew. Montreal, Que., June., (J. Ouellet).
305. *Gymuopterus humeralis* Loew. Montreal, Que., June. (J. Ouellet).
306. *Gymnopterus tristis* Loew. Joliette, Que., July, (J. Ouellet)).
308. *Tachytrechus vorax* Loew. Ft. Erie, Ont., July. (Van Duzee).

Representatives of the above species collected by Mr. M. C. Van Duzee, have been kindly presented to the National Collection by him.

Sarcophagidæ.

* *Sarcophaga apertella* Park. British Columbia, (R. S. Sherman).
* *Sarcophaga savoryi* Park. B.C.
* *Sarcophaga wrangeliensis* Park. Vancouver. B C., May, Canfield, B. C., May, 1918, (R. S. Sherman).

The above three species were described in the Bull. Brooklyn Ent. Soc. Vol. XV. No. 4, 1920.

Sciomyzidæ.

* *Dryomyza dayi* Cres. Columbia River, B.C., (J. C. Bradley). Trans. Am. Ent. Soc. Vol. XLVI, No. 1, 1920.

578. *Sciomyza pubera* Loew. Montreal, Que., September, (J. Ouellet).

* *Melina palustris* Melan. Nelson, B.C. Ann. Ent. Soc. Am. Vol. XIII, No. 3, 1920.

* *Melina maculata* Cres. Done Creek, Selkirk Mts., B. C., (J. C. Bradley). Trans. Am. Ent. Soc. Vol. XLVI, No. 1, 1920.

* *Renocera johnsoni* Cres. Bear Lake, B. C., (R. P. Currie). Trans. Am. Ent. Soc. Vol. XLVI, No. 1, 1920.

Sapromyzidæ.

* *Lonchaea aberrans* Mal. Spruce Brook, Newfoundland, August 8; Elphinstonee, Man., (W. A. Burman). Can. Ent. Vol. LII, Nos. 6 and 7, 1920.

Anthomyiidæ.

* *Mydaea persimilis* Mal. Lake Louise, Alta., (C. S. Minot).

* *Mydaea brevipilosa* Mal. Fogo Island, Newfoundland.

* *Helina hylemyoides* Mal. Field, B. C., (S. Brown).

* *Helina tuberculata* Mal. Lake Louise, July, (C. S. Minot).

* *Helina nasoni* Mal. Grand Lake, Newfoundland, July.

* *Limnophora gibsoni* Mal. Youghill, N. B., July, (A. Gibson).

* *Limnophora alticola* Mal. Nain, Labrador; Lewis Port, Newfoundland. July.

* *Trichopticus conformis* Mal. Mt. St. Piran, Alta., (H. Skinner); Cape Breton, N. S., Youghill N. B., (Gibson); Spruce Brook, Newfoundland; Lillooet, B. C.

* *Trichopticus brevitarsis* Mal. Bear Lake, B. C., (Currie); Kokanee Mt., B. C., (Currie).

* *Coenosia dichaeta* Mal. Fairwell Creek, Sask., July.

* *Coenosia denticornis* Mal. Fairwell Creek, Sask., July.

* *Coenosia johnsoni* Mal. Gold Rock, Ont., (H. H. Newcomb).

* *Pegomyia unguiculata* Mal. Lake Louise, Alta., July, (Minot).

* *Pegomyia labradorensis* Mal. Nain, Labrador, August.

* *Pegomyia triseta* Mal. Montreal, Que., June, (G. Beaulieu).

* *Prosalpia angustitarsis* Mal. Cape Breton, N. S., July.

* *Hylemyia innocua* Mal. Lewisport, Newfoundland, July-August, (L. P. Gratacap); Godbout, Que., (E. M. Walker).

* *Hylemyia bicruciata* Mal. Great Caribou Island, Labrador, July.

All the above Anthomyiidae described in Trans. Am. Ent. Soc. Philadelphia, Vol. XLVI, No. 2, 1920.

Hymenoptera.

Tenthredinidæ.

* *Platycampus victoria* MacG. Victoria, B. C., (W. Downes), on Lombardy Poplar. Can. Ent. Vol. LII, No. 3, 1920.

Braconidæ.

Meteorus dimidiatus Cres. Retlaw, Alta., (E. H. Strickland).

* *Apantelese victoriae* Mues. Victoria, B.C. Proc. U. S. Nat. Mus. Vol. LVIII, 1920.

* *Apanteles tmetocerae* Mues. Nova Scotia, (W. H. Brittain). Proc. U.S. Nat.. Mus. Vol. LVIII, 1920.

Ichneumoninæ.

* *Ephialtes leavitti* Cush. St. Johns, N. B., (A. G. Leavitt). Proc. U. S. Nat. Mus. Vol. LVIII, 1920.

* *Ephialtis pacificus* Cush. Vancouver, B. C., (C. F. Baker). Proc. U. S. Nat. Mus. Vol. LVIII, 1920.

* *Arutus maurus* Roh. Mission, B.C. Proc. U. S. Nat. Mus. Vol. LVIII, 1920.

Amblyteles subfuscus Cres. Lethbridge, Alta., (Strickland).

Miscogasteridæ.

* *Tridymus claricornis* Girau. Oxbow, Sask., (F. Knab). Proc. U.S. Nat. Mus. Vol. LVIII, 1920.

Encyrtidæ.

* *Copidosoma gelechiae* var. *saga* Girau. Ottawa. Proc. U. S. Nat. Mus. Vol. LVIII, 1920.

Hemiptera

Arranged according to A Check List of the Hemiptera,—excepting the Aphididae, Aleurodidae and Coccidae,—of America north of Mexico by E. P. Van. Duzee, N. Y. Ent. Soc. 1916).

Scutelleridæ.

15. *Homaemus bijugis* Uhl. Regina, Sask., (J. Fletcher).

23. *Phimodera torpida* Walk. Aweme, Man., June, 1903, (Fletcher); Dauphin, Man., (Mrs Hippesley).

Cydnidæ.

29. *Thyrcocoris anthracinus* Uhl. Dauphin, Man., (Mrs. Hippesley).

58. *Pangaeus bilineatus* Say. Kaslo, B.C., June, (J. W. Cockle).

71. *Sehirus cinctus* (P. B.) Winnipeg. (A. W. Hanham); Dauphin, Man., (Mrs. Hippesley); Sask., (Fletcher).

Pentatomidæ.

93. *Peribalus abbreviatus* (Uhl). Carp, Ont., June, 1905, (A. Gibson).

105. *Rhytidolomia faceta* (Say). Aweme, Man., April, 1906, (Criddle).

110. *Carpocoris remotus* Horv. Aweme, Man., June, 1916, (Criddle).

125. *Euschistus tristigmus* (Say). Winnipeg, Man., (Hanham).

139. *Coenus delius* (Say). Winnipeg, (Hanham); Westburn, Man., (J. B. Wallis); Aweme, Man., (Criddle).

144. *Aelia americana* Dall. Ottawa, (Fletcher); Winnipeg, (Hanham). Dauphin, Man., (Mrs. Hippesley); Aweme, Man., (Criddle); Lethbridge, Alta., (E. H. Strickland).

206. *Elasmostethus atricornis* (Van D.). Ottawa, Sept. 25, 1920, (J. McDunnough).

Coreidæ.

247. *Leptoglossus occidentalis* Heid. Jordan, Ont., June, 1917, (W. A. Ross).

322. *Alydus pluto* Uhl. Meach Lake, Que., October 17, 1906, (Fletcher); Olds, Alta., (T. N. Willing); Dunvegan, Alta., (E. H. Strickland).

Aradidæ.

361. *Aradus quadrilineatus* Say. Aweme, Man., May, 1915, (Criddle).
389. *Aradus falleni* Stal. Victoria, B.C.

Lygæidæ.

538. *Ligyrocoris diffusus* (Uhl.) Beaver Dam, Alta., August. (Strickland).
600. *Eremocoris ferus* Say. Aweme, Man., May, (Criddle); Jasper, Alta., August, (C. G. Hewitt).

Tingididæ.

654. *Gargaphia tiliae* (Walsh). Norway Pt., Lake of Bays, Ont., July 25, 1920, (J. McDunnough).

Reduviidæ.

724. *Pygolampis pectoralis* (Say). Winnipeg, Man., (Hanham).
Arilus audax Banks. Aweme and Carberry, Man., July, (Fletcher).

Anthocoridæ.

861. *Anthocoris musculus* Say. Montreal, Que., (G. Beaulieu); Lake of Bays, Ont. (J. McDunnough); Winnipeg, (Hanham).

Miridæ

Phytocoris erectus Van D. Norway Pt., Lake of Bays, Ont., July 30, 1920, (J. McDunnough).
* *Phytocoris conspurcatus* Knt. Trenton, Ont., August 6, (J. D. Evans). Bull. Brooklyn Ent. Soc. Vol. XV, Nos. 2-3, 1920.
* *Phytocoris corticevirens* Knt. Kingsmere, Que., July, (Chrystal); Hemmingford and Covey Hill, Que., (C. E. Petch). Bull. Brooklyn Ent. Soc. Vol. XV., Nos. 2-3, 1920.
967. *Adelphocoris superbus* (Uhl). Raddison, Sask., June, 1907, (Fletcher).
1004. *Poecilocapsus lineatus* (Fabr.) Aweme, Man., July, 1909, (Criddle).
1032. *Lygus elisus* Van D. Cowley, Alta., (R. N. Chrystal).
1035. *Lygus plagiatus* Uhl. Winnipeg, Man., September, 1909, (Wallis).
Lygus fagi Knt. Lake of Bays, Ont., July, (McDunnough).
Lygus atritylus Knt. Lake of Bays, Ont., July, (McDunnough).
Lygus ulmi Knt. Chicoutimi, Que., July, (Beaulieu).
Lygus tiliae Knt. Lake of Bays, Ont., July, (McDunnough).
Lygus omnivagus Knt. Aylmer, Que., June., Lake of Bays, Ont., July. (McDunnough).
Lygus ostryae Knt. Ottawa, Ont., June, (Crawford), Lake of Bays, Ont., (McDunnough).
Lygus canadensis Knt. Lake of Bays, Ont., July, (McDunnough).
1044. *Neoborus pettiti* (Reut.) Ottawa, Ont., June, 1920, (McDunnough).
* *Neoborus pubescens* Knt. Kirk's Ferry, Que., June, (Crawford). Bull. Brook. Ent. Soc. XII, 1917.
1063. *Camptobrochis histrio* (Reut.) Aweme, Man., June, (E. Criddle).
1106. *Hyaliodes vitripennis* (Say). Lake of Bays, Ont., June, (McDunnough); Aweme, Man., July, (Criddle).
1147. *Lopidea confluenta* (Say). Aweme, Man., June 21, (Criddle).
Lopidea minor Knt. Winnipeg, Man., (Hanham); Spirit River, Alta., August, (Strickland).
1153. *Hadronema militaris* Uhl. Raddison, Sask., July, 1907, (Fletcher); Olds, Alta., (T. N. Willing); Lethbridge, Alta., July, (Strickland).
Orthotylus ornatus Van Du. Ft. Coulonge, Que., July, (J. E. Beaulne).

1188. *Mecomma gilvipes* Stal. Cascades, Que., July, (H. G. Crawford).

1204. *Macrotylus tristis* Uhl. Ottawa, Ont., June, 1913, (W. Metcalf).

1256. *Europiella rubida* (Uhl.) Hull, Que., and Ottawa, Ont., (Beaulieu); Winnipeg, Man., (Hanham).

Cicadellidæ.

1767. *Agallia sanguinolenta* (Prov.). Lake of Bays, Ont., (McDunnough); Winnipeg, (Hanham); Dauphin, Man., (Mrs. Hippesley); Aweme, Man., (Criddle).

1779. *Idiocerus suturalis* Fh. Edmonton, Alta., August., (Strickland).

1795. *Idiocerus lachrymalis* Fh. Aweme, Man., June, (Criddle). Crows Nest, Alta., 1888, (J. Macoun).

1839. *Bythoscopus rufoscutellatus* (Bak). Raddison, Sask., (Fletcher).

1847a. *Oncometopia lateralis* Fab. Aweme, Man., September, 1904, (Criddle).

1855. *Cicadella gothica* (Sign.). Aweme, Man., (Hewitt and Griddle).

1864. *Graphocephala coccinea* (Forst.). Aweme, Man., August, (Criddle).

1955. *Parabolocratus viridus* (Uhl.). Lethbridge, Alta., June, (Strickland).

1987. *Scaphoideus consors* Uhl. Aweme, Man., July 10, 1914, (Criddle).

2179. *Eutettix seminudus* (Say). Aweme, Man., August 12, (Criddle).

2181. *Eutettix strobi* Fh. Aweme, Man., July, 1907, (Fletcher).

2265. *Thamnotettix clitellarius* (Say). Aweme, Man., August, 1909, (Criddle).

2356. *Cicadula punctifrons* Fall. Aweme, Man., July, 17, (Criddle).

2370. *Balclutha punctatus* (Thun.). Lake of Bays, Ont., August, (McDunnough).

Orthoptera.

Tryxalinæ.

Cheoealtis abdominalis Thom. Chilcotin, B.C., July-August, (E. R. Buckell).

Cheoealtis consperca Han. Chilcotin, B. C., July-August-September, 1920, (E. R. Buckell).

Platybothrus brunneus Thom. Chilcotin, B. C., July, 1920, (E. R. Buckell). New to B. C.

Oedipodinæ.

Circotettix carlinianus Thom. Chilcotin, B. C., July, 1920, (E. R. Buckell).

Locustinæ.

Melanoplus occidentalis Thom. Newgate, B.C., July, 1920, (W. B. Anderson). New to B. C.

Melanoplus brunneri Scudd. Chilcotin. B. C., July-September, 1920, (E. R. Buckell).

Melanoplus alpinus Scudd. Chilcotin, B. C., July, 1920, (E. R Buckell).

Melanoplus borealis Fab. Chilcotin, B. C., July, 1920, (E. R. Buckell). New to B. C.

Melanoplus infantilis Scudd. Chilcotin, B.C., July, 1920, (E. R. Buckell).

Melanoplus altitudinum Scudd. Chilcotin, B.C., July, 1920, (E. R. Buckell).

Odonata.

(Arranged according to Muttkowski's Catalogue of the Odonata of North America. The numbers refer to pages in the Catalogues.)

Gomphinæ.

91. *Gomphus descriptus* Banks. Cascades, Que., June 13, 1920, (J. McDunnough).

97. *Gomphus spicatus* Hagen. Ottawa, Ont., June 3, 1920, (J. McDunnough).

Ephemeridae.

17. *Choroterpes basalis* Banks. Ottawa, Ont., August 25, 1920, (C. B. Hutchings).

20. *Baetisca obesa* Say. Ottawa, Ont., June 14, (J. McDunnough).

Collembola.

* *Pseudochorutes saxatilis* Macna. Marshalls Bay, Ont., August-October, (C. Macnamara). Can. Ent. Vol. LII, No. 8, 1920.

Myriapoda.

* *Scytonotus Columbianus* Cham. Columbia Valley, B.C., September 26, 1883, (J. B. Tyrrell).

* *Conotyla albertana* Cham. Bow River, Alta., September 28, 1883, (J. B. Tyrrell).

* *Parajulus perditus* Cham. Waterton Lake. August 24, 1883, Wigwam River, July 25, 1883, (J. B. Tyrrell).

The above three species described in Can. Ent. Vol. LII, No.6-7, 1920.

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Ontario Department of Agriculture

FORTY-FIRST ANNUAL REPORT

OF THE

Beekeepers' Association

OF THE

PROVINCE OF ONTARIO

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
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1921

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To His Honour Lionel H. Clarke,

Lieutenant-Governor of the Province of Ontario.

May It Please Your Honour:

I have the honour to present herewith for your consideration the Forty-first Annual Report for the Ontario Beekeepers' Association for 1920.

MANNING W. DOHERTY,
Minister of Agriculture

Department of Agriculture,
Toronto, 1921.

Ontario Beekeepers' Association

OFFICERS FOR 1921

President—W. W. Webster, Little Britain, Ont.
1st *Vice-President*—A. McTavish, Carleton Place, Ont.
2nd *Vice-President*—R E. L. Harkness, Iroquois, Ont.
Secretary—Treasurer—F. Eric Millen, Ontario Agricultural College, Guelph.

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2—A. McTavish Carleton Place.
3—M. B. Holmes, Athens.
4—John Chisholm, Rt., Belleville.
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8—Jas. Armstrong, Rt. 1, Selkirk.
9—John Newton, Thamesford.
10—John Myers, Stratford.
11—E. T. Bainard, Lambeth.
12—R G. Houghton, Rt. 2, Bradford.
13—Ontario Agricultural College, F. Eric Millen, Provincial Apiarist, Guelph.

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Honey Crop Report Committee—W. J. Craig, H. G. Sibbald, Wm. Couse, W. W. Webster, *President*; F. Eric Millen, Secretary-Treasurer.
Honey Exhibit Committee—Wm. Couse, P. Temple, John Eyre, F. Eric Millen.
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Committee on Resolutions—M. B. Holmes, John Myers, W. A. Chrysler.

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Ottawa Exhibition—A. McTavish.
London Exhibition—E. T. Bainard, Lambeth.
Royal Winter Fair—Wm Couse, H G. Sibbald W. W. Webster.

TREASURER'S REPORT

For the Year Ending November 30th, 1920

Receipts

Balance on hand, 1919	$ 232	40
Membership Fees (1.50)	1,014	56
Membership Fees (75c.)	382	13
Queen Order Receipts	2,091	62
Affiliated Society Dues	175	00
Ontario Government Grant	1,000	00
Honey sold from Toronto Exhibit	672	91
Sundries	37	80
	$5,606	42

Expenditures

Fees to County Societies	$ 392	87
Grants to County Societies	202	60
Committee and Convention Exp.	576	14
Subscription to *Beekeeper*	976	69
Printing and postage	245	71
Queen payments	1,669	59
Office help	260	00
Refunds on Queens ordered	350	80
Honey bought and exp. at Toronto Exhibition	752	03
Sundries	141	12
Balance on hand	38	67
	$5,606	42

W. W. Webster,
President.

F. Eric Millen,
Secretary-treasurer.

Ontario Beekeepers' Association

The Forty-first Annual Convention of the Ontario Beekeepers' Association was held in the Apiculture Building, Ontario Agricultural College, Guelph, on Wednesday, Thursday, and Friday, December 1st, 2nd, and 3rd, 1920.

ADDRESS OF WELCOME.

J. B. Reynolds, M.A., President Ont. Agr. College, welcomed the members of the O.B.K. Ass'n. to the college and buildings of the O.A.C.

FORMAL OPENING OF THE APICULTURE BUILDING.

In the absence of Premier Drury, Prof. Reynolds introduced Mr. Roadhouse, who in a short address declared the new building opened. He also congratulated the Beekeepers upon the forward step in teaching apiculture that the building would make possible.

PRESIDENT'S ADDRESS.

W. W. WEBSTER, LITTLE BRITAIN.

It is with a great deal of pleasure that we welcome you all to this our forty-first anniversary of the Ontario Beekeepers' Association. We are also glad that it has been our privilege to gather in the new Apiculture Building, of which we as beekeepers feel a sense of pride.

For several years Foul Brood of two varieties, European and American, have been our worst enemy in the beekeeping industry. Funds have not been adequate to supply the great need in baffling this disease. Last year your delegation waited on the Minister of Agriculture asking for a larger grant, and while it was materially increased it was not increased to the extent that we had hoped.

To the farmer the growing of clover seed is frequently his greatest asset. We have been impressed this season more than ever before with the value of bees in the production of clover seed. Only to a very small degree do the beekeepers receive the fruits of their labour. Between our apiary and another apiary near-by nestles a small farm, the front of which produced alsike clover this season. Needless to say, the seed netted more than we could ever hope to realize on honey in one year, and while the seed grower does not always fully appreciate our efforts and would be annoyed were he told that we played any part in the production of his big crop, still we believe ourselves to be public benefactors, in fact philanthropists, and possess a consciousness of duty done while obeying the command of the writer, "Where duty calls or danger be never wanting there." Truly, the beekeeper only partially receives the benefits from the labour of his bees.

To illustrate the value of bees in the pollenation of alsike clover, I might mention that the field referred to yielded 178 bags or 400 bushels which sold for $15 per bushel, amounting to $6,000, and which at last year's price of $30 per bushel would be $12,000. On another farm, with soil equally as good, was a nice clean field of alsike which would gladden the heart of either a farmer or beekeeper. This field was distant several miles from any apiary and for some reason which we can almost guess only yielded one-third the amount. It seems like positive and conclusive proof of the great value of bees in the pollenizing of clover in seed production.

Owing to weather conditions, or some other cause, sweet clover far surpassed alsike this season in honey production.

In supplying Italian queens for members of the Association, the supply has not been equal to the demand. Orders were placed early, but breeders as usual failed in filling them. However, some 1298 queens were sent to members of the Association, but many more were ordered and cancelled. Owing to the ravages of European foulbrood, the demand for pure Italian queens is great, and the only solution to the problem seems to be the rearing of queens in Ontario. This could be better accomplished by the Department of Agriculture and the Association than by individual beekeepers and in time would be self-sustaining.

Honey commenced selling this season the highest in its history, but following the action of the Federal Cabinet in refusing to uphold the Board of Commerce which put the retail price of sugar at 21 cents per pound, it naturally affected the sale of honey, as did also the arrival of New Zealand honey. Until the sugar question is more settled, it is not probable dealers will purchase honey very readily. At the present time dealers are unwilling to pay the producer's price, and as a result there is more and more tendency to drop the middleman, and the producer to sell direct to the consumer. Last winter was a very severe winter followed by a cold spring and fully half the bees in the Province perished, and with an average throughout the Province of only 46 pounds per colony of light honey and 23¾ pounds of dark, the beekeepers feel justified in standing by the prices set by the Crop Report Committee. Of course we do not anticipate present honey prices to continue for any great length of time. We are passing through a transition period and a readjustment in the price of honey and other food stuff e'er long is inevitable.

VICE-PRESIDENT'S ADDRESS

A. McTAVISH, CARLETON PLACE.

We are pleased to have an opportunity of meeting here at Guelph, especially on the occasion of the opening of this magnificent and costly Apiculture Building. A building like this shows the recognition of the value and importance of the study of Apiculture, and also that beekeepers are taking their place side by side with other branches of Agriculture. We are proud to have this substantial structure added to the fine group of buildings in which the work of this College is being carried on.

We now naturally think the Department of Agriculture will do something better in the way of grants to our Association for the purpose of inspection work for stamping out bee diseases. We thank the Government for the assistance given us in the past, but we are impressed with the idea that the time is ripe for a substantial increase in the Legislative grant. The grants received, although small for the work that should be done, has been well expended, whereas if larger sums were available much time could be saved in getting bee diseases under control.

The President has illustrated the value of bees in the pollenation of clover. In most of the Eastern counties clover is not grown for seed, but I am requested by farmers sometimes to place bees within reach of their buckwheat areas, which I have done sometimes to my own advantage, other times at a loss. However, the buckwheat growers seem to think the yield is better when bees are within reach, so beekeeping is an asset to Agriculture.

The honey crop in the Ottawa District was fairly good. Clover honey was practically a failure, but basswood yielded abundantly. The demand for honey was not as brisk as it might be. This may be due, as the President said, to the sugar situation and importation of honey. But I think more so because honey is not brought before the public as other foods are. I think you will agree with me that publicity is the needful thing. This might be done by a system of advertising in the newspapers. If the same effort was put behind the sale of honey as in the advertising of other foods, the price would be even higher than it is, and we could not produce enough to supply the demand. But I think we could do much to develop a home market ourselves by putting up attractive exhibits at the local Fall Fairs, also noticeable displays in the stores. As a rule, the majority of people do not think of honey until they see or hear about it. Speaking to the manager of one of the departmental stores in Ottawa, he said honey was rarely asked for, but sold quickly when seen. If he placed a table of it where people would see it all would be sold in a few hours. Another experience bears out this thought. This year I sold most of my dark honey locally, because when supplying the grocers I insisted upon them making an attractive window display. The result was I filled second and third orders. Other years there was not as much dark honey sold in those towns.

SECOND VICE-PRESIDENT'S ADDRESS

R. E. L. HARKNESS, IROQUOIS.

I might say that from my time as a student here I have watched progress with a great deal of interest, and when I look back at the inconveniences and little equipment there was here at the College at that time as compared with the present equipment, certainly those younger beekeepers who are taking up the industry at the present time are indeed very fortunate.

European foulbrood commenced in Renfrew County, and it went through Prescott and Russell Counties, through Glengary County, and finally came up and struck Dundas County. It struck hard. This year in my vicinity quite large prosperous apiaries were completely wiped out, nothing left. Now, those men were encouraged to get in better stock and they were encouraged to attend Beekeepers' Conventions, and so on, and were encouraged to join our own local association, but we met with very little success. What is the result? We see it. With all this stuff around me badly infected, I got it, of course. Now, the first time I discovered foulbrood, in fact the first time I have seen it in my own yard, I well remember my feelings at the time. I at once saw a vision of everything in a demoralized condition, and I was frantic. The first year I found eight diseased colonies, and what happened? I at once took those eight diseased colonies, put a bunch of straw back in the orchard, put some coal oil over it, and put the eight diseased colonies on it and burned the whole thing up. Did I make a mistake? You may say it is rather rash treatment. Well, I admit it is, but I got rid of the foulbrood I saw that year. Well, this year, upon examination, lo and behold the foulbrood was still there, but I did not burn them up this year. I treated them with the ordinary treatment, with the result that this fall all colonies treated were beautifully strong, healthy colonies, and at the same time produced quite a nice surplus.

Mr. Holterman: It is with very peculiar pleasure that I am here today at the opening of this building. I came here as a student in 1878, and it would take too long a time to go through the various stages and efforts that were made in order to get the recognition of beekeeping here at the Ontario Agricultural College, but going through the building here to-day and seeing the facilities which will be offered for carrying on this work, I am sure that every beekeeper in this Province will be very much pleased at that which has been done, and I think I can also say on the part of the beekeepers that we are well pleased, and have every confidence in Prof. Millen as the one in charge of this department. I want to congratulate the College and the students and the Province at large upon the step which has been taken in this building which has been opened here. There has been a good deal said of the advantages to the beekeeper, and those advantages should be very material. I recognize the difficulty, as Prof. Reynolds said, of getting the best methods of beekeeping taken in hand by everyone in the Province, and that that should be one of the aims of this Department. But I would like to go beyond that, as the President of the Association has done, and say that where a dollar is expended for the advantage of the beekeeper the Province at large easily reaps another dollar in the advantages which the various branches of Agriculture get from encouraging beekeeping in the Province. I know and could give plenty of examples of the great advantages to the alsike clover seed grower, and I always think we weaken our case where we try to make a point which cannot be sustained. I do not claim but what there are seasons where alsike clover seeds are fertilized without the help of bees, but in order to make that business profitable, one year with another, I do not hesitate to say that it is essential that bees should be kept in the vicinity of those fields, and we have fruit-growing, buckwheat production, etc., so that wherever a dollar is wisely given for the advantage of beekeeping another dollar is reaped by the branches of agriculture outside of beekeeping.

I know that others would like to speak and I will not attempt to say anything more, but I do heartily congratulate the Province, the Department of Agriculture, and this College and the beekeepers upon the step which has been taken.

REPORT OF THE SECRETARY FOR 1920

F. ERIC MILLEN, O.A.C., GUELPH.

The total number of memberships in the Ontario Beekeepers' Association received from November 1st, 1919, to October 31st, 1920, was 1188, an increase of 44 memberships over 1919.

Thirty-three County Associations are now affiliated with the Provincial Association and in good standing. Three counties organized and affiliated during the year: Dufferin, Frontenac, and Waterloo.

There are still a number of counties not yet affiliated, as seen below.

Following is the list of counties with membership to October 31st, 1920. Those counties marked with a star have no county organization:

Counties.	Members.	Counties.	Members.
*Algoma	5	*Muskoka	10
Brant	26	Temiskaming	10
Bruce	43	Norfolk	22
Carleton	59	*Northumberland	11
Dufferin	17	*Ontario	27
Dundas	11	Oxford	46
Durham	23	*Peterboro	9
*Elgin	11	Perth	35
Essex	15	*Prescott	2
Frontenac	14	Prince Edward	16
*Glengarry	7	*Rainy River and Kenora	7
Leeds and Grenville	24	Renfrew	13
Grey	25	Russell	17
Haldimand	24	Simcoe	45
Halton and Peel	41	Stormont	20
*Hastings	16	*Thunder Bay	3
Huron	22	*Parry Sound	16
Kent	22	Victoria	32
Lambton	23	Waterloo	39
*Lanark	12	Wellington	44
*Lennox	7	Wentworth	32
Lincoln and Welland	44	York	48
*Manitoulin	1	Toronto	105
Middlesex	45	Outside Ontario	42

The Association continued ordering queens for members, and in view of the scarcity of queens in 1919, the Secretary contracted for 2,200 for 1920. Even by contracting ahead it was found impossible to secure all the queens; some of the breeders were unable to fill orders when the queens were wanted and many orders were unfilled. The demand, coupled with poor season, caused a number of our breeders to fall down on delivery. The Association filled 196 orders for 1298 queens. In 1919 one hundred and thirty three members purchased 783 queens.

Until it is possible for the Association to make some better arrangements, or to have a queen-rearing apiary with sub-queen rearing apiaries, it will not be possible to supply the demand for queens. Many beekeepers are beginning to appreciate the value of the queen in honey production. The time must come when the members can secure queens from pedigreed stock at the time these queens should be introduced to the colony. At the present time only a few beekeepers in the Province can secure and introduce the queens at the proper season.

Pedigreed queens cannot be secured in one season; it must take at least three years before a strain can be developed, and then each year thereafter the stock should be of greater value. This work has been commenced in the College apiary and with another season we should have more uniform stock.

In purchasing queens the members must feel certain they are securing good queens, otherwise it is a gamble to kill good year old or even two year old queens of proved quality and introduce queens of doubtful pedigree. The price is secondary to the value of the queen. Many queens are dear at $1.50, while others are cheap at twice the price. It is to be hoped that the Association will be able to carry on this most important work.

A provincial queen-rearing apiary or apiaries is also very necessary for the control of European foulbrood.

The Association did not handle package bees during the season. The demand for package bees is such that definite orders have to be placed during the winter or very early spring to be certain of delivery. Many members are not in a position to know their needs that far ahead. The secretary has always advised buyers, whenever the members wrote to his office, to order personally and have a time clause for delivery on a specified date or money refunded.

Mr. Holmes moved the adoption of the report, which was seconded by Mr. Bainard, and carried.

J. J. Morrison, Sec'y-Treas. United Farmers' of Ontario, then gave an address on " Practical Economics."

QUESTION DRAWER

ANSWERED BY F. W. KROUSE, GUELPH

Q.—Is there any sure way of inducing a hive of fertile workers to accept a queen? A.—No, I don't think there is, without a good deal of trouble.

Q.—Can pound packages of bees placed on drawn combs be built up to give a surplus equal to colonies wintered in good condition? A.—I would say yes. If the packages come early enough in the spring. What I would say as early enough would be between the 21st of April and the 10th of May.

Mr. Myers: Do you mean by that that if you have a pound package it would be as good as a full colony wintered here in Ontario? A.—No, not from a pound. I have had no experience with pound packages. I have had a good deal of experience with two-pound packages. Two pounds of bees is better, to my way of thinking, coming between the 20th April and 10th May.

Q.—How about a three-pound package? A.—No better than a two, unless it is shipped in a larger cage than they use, because pretty nearly a pound are dead when they get here. They are put in too small cages. If shipped in a large cage they would perhaps be better than the two pound.

Q.—Why is the freight rate higher on honey than syrup? A.—The railways say because it is valued more highly.

Q.—Is beet sugar as good as cane sugar for feeding? A.—I have never used it so I don't know. I have heard of people using it and getting good results, but I think the majority of beekeepers prefer cane sugar.

Mr. Bainard: How do you know the difference? A.—Well I claim I can tell the difference; it looks bluer and dirtier than cane sugar.

Mr. Couse.—Only yesterday I was in Detroit and an expert sugar man said he could not tell the difference. A.—They put the cane sugar stamp on the bag, because that is the only way we have of absolutely telling whether they are giving us cane sugar or not.

Q.—Did you ever see a bag of granulated sugar stamped beet sugar? A.—No, I can't say I did. The only way I ever saw beet sugar dissolved was at home when they got some for preserving, and as soon as we opened the bag could easily distinguish the difference in the colour, sort of bluish. That was put up as beet sugar. If it was all like that bag I could surely tell the difference between the two.

Q.—How long ago? A.—About five years ago.

Mr. Kelty: This same question came up in Michigan at our last Convention, so we got after the State chemist and asked him what the difference was. He said several years ago there was a difference because a certain amount of blue was used in bleaching beet sugar; furthermore, there was a chemical left there, petain, which since then has been removed, and he says now there is no difference in the chemical analysis between beet and cane sugar.

Mr. Myers: I suppose this is with reference to wintering bees. Now four years ago when we had that hard winter, we sent and got some St. Lawrence sugar, got half the quantity I needed all marked cane sugar, and then got some from the Dominion Sugar Co. that was not marked cane at all and which we, of course, expected to be beet, and we could not see any difference in the beet, and the colonies all came out about the same; so as beekeepers I don't think it makes any difference.

Mr. Holtermann: So far as the colour of the blue is concerned, that is a matter of refining. The United States Pure Food law does not allow any blue to be put into sugar at all, and the Canadian law does.

Mr. Holmes: While the average of us are not competent to give the chemical analysis of the sugar, we are competent to notice the cloudy appearance of the syrup made from what is known as beet sugar.

Q.—Tell me when to extract my honey so that it will be No. 1? A.—The best way is to leave it until it is almost all capped, and if you leave it until all capped and still longer it will be better honey. The longer it is left on the bees the better, and especially with sweet clover.

Mr. Myers: In connection with that question, supposing you take the honey off from the bees after it is pretty well sealed and stored away in a room and keep that room at moderately warm temperature, would that not be as well as leaving on the bees longer? A.—I don't think so.

Q.—What is the reason? A.—The longer it is left on the bees the better flavour it has.

Q.—How do the Carniolans bees compare with the Italian? A.—I have never had any experience with Carniolans bees. Is there any person who could answer that question.

Mr .Holtermann: We had Carniolan bees for years and Italians alongside of them, and the young man that I had with me every season decided that the Carniolans were better rearers of broods, in the face of that had more honey around, but the only reason I got rid of them was that I expected some day they would be struck with European foulbrood, and after careful questioning at various conventions in New York State I could not find out that anyone would recommend them as being equal to Italians in resisting European foulbrood.

Q.—What is the easiest way to re-queen? A.—There have been a good many different methods tried. I will just give you my method and you can suit yourselves about the other ones. The last two years I have been re-queening, by killing the old queen and putting the other queens in immediately in the cage by taking the paper off and shoving a match through the candy so that the bees will get in there in half an hour. I think the directions on those cages are wrong as it takes too long for the bees to eat through the paper.

Mr. Bainard: One of the largest queen breeders in the South advised covering up the wires on the side of the queen cage. He stated that the bees at the start will form a little tussle on the side of the cage and as soon as the queen is out run right at her.

Mr. Krouse: There is a time of year when I think you can put a queen in any way you like, and there are other times of the year when they will hardly take a queen under any conditions.

COLONY MORALE

GEO. S. DEMUTH

Beekepers have long known that their colonies do not always work with the same spirit. It sometimes happens especially, when producing comb honey, that certain colonies will store twice as many pounds of honey as other colonies of equal strength.

Those who practise breeding from colonies which store the most honey soon discover that energetic work is apparently more often a result of inbred characteristics. It seldom happens that the same colony gives the highest yield year after year, and it often happens that large yields are produced by colonies from which best results were least expected. The difference in such cases must be attributed to some condition within the hive which affects the spirit with which the bees work. Just what these conditions are have not been fully worked out but it is my purpose in this talk briefly to outline a few of the things which are known to affect the spirt of work in the honey bee colony.

It is well known that certain conditions in the colony environment will cause bees to loaf even when nectar is abundant in the fields. Colonies that are preparing to swarm, sometimes slow down on gathering and storing. This is so noticeable in some cases that formerly hanging out (loafing on the outside of the hive) during the honey flow was pointed out as an infallible sign that the colony was preparing to swarm. In a well managed apiary this hanging out has been largely overcome so that visible loafing just previous to swarming is not now so noticeable.

Colonies which have filled their combs with raw nectar so there is no room for any more until some of the water is evaporated out of it are, of course, compelled to slow down on bringing in more from the fields whether the bees will to do so or not. When every available cell has been used for the raw nectar, the excess is given to certain bees which act as storage tanks to hold the honey until there is room for it. This condition soon makes a colony sluggish and the habit of loafing apparently remains after the cause has been removed.

Anything which brings discomfort to the bees within the hive, such as excessive heat, or inadequate ventilation, quickly slows down the activity of the colony. When it is too warm inside the hive, instead of the bees going to the fields where it might be cooler, they stay at home apparently adding to their own discomfort by doing so. When the hives are exposed to the direct rays of the sun and not well ventilated, the bees will sometimes almost entirely stop work during hot sultry afternoons, and great masses of bees that should be in the fields will cluster on the outside of the hive while colonies that are comfortable are rolling in the nectar.

Colonies which have failing queens, other things being equal, usually work with less spirit than do colonies which have vigorous queens.

Colonies which are queenless usually work with less spirit than queenright colonies especially when producing comb honey and colonies which are hopelessly queenless usually show a marked slump in the spirit with which they work even in extracted honey production.

Colonies in which most of the bees are old, work with less energy than colonies made up of young bees. These and probably many other things reduce the efficiency of the colony by causing the bees to loaf a part of the time even during a bountiful harvest.

It was my privilege at one time to conduct a series of experiments which incidentally yielded some data on the number of trips per day made by the field bees in carrying in nectar from the apple blossoms. The experiment was repeated a number of times in widely separated parts of the United States and the results obtained were quite consistent under the various conditions. Briefly, stated, data was obtained for each of several colonies as follows: Approximately the number of bees in the colony determined daily; approximately the percentage of these that were field workers; the total amount of nectar carried into the hive each day, corrections being made for the evaporation, and the amount of nectar carried in a single load by individual bees, this being determined every hour during the day. Having the average weight of the loads the bees were carrying, the approximate number of field bees which should have been engaged in carrying nectar, and the total amount carried in during the day, it became a simple problem in mathematics to find how many trips were made on the average per bee per day.

During the day the apple blossoms were examined each hour to see if the bees were able to clean up the nectar from the flowers. For a few days when this experiment was conducted in a commercial fruit growing belt in Michigan, no blossoms could be found at any time without visible nectar, there being hundreds of acres of fruit trees within range and but few colonies of bees. How many trips per day do you think these sysmbols of industry and efficiency made to the nearby apple trees to carry in the precious nectar? The average was between four and five trips per bee per day.

While this may seem to be surprisingly low, it checks up very well with other data on the same subject. For instance, a strong colony that is able to send eight pounds of bees to the field, each bee carrying on half its own weight of nectar (which is less than they carried in the experiment just mentioned) should carry four pounds of nectar into the hive for the first trip. Four trips per bee per day for the eight pounds of field bees would mean 16 pounds of nectar and five trips would mean twenty pounds of nectar. This we would consider a good day's work for a strong colony.

The most significant thing about these experimental colonies was that the figures indicated an average of only two and a fraction trips per bee per day in some colonies, while in others the average was nearly seven trips. Now if by providing a better environment, the beekeeper is able to induce the field workers of his colonies to make one or two extra trips to the field per day, thus bringing home one or two extra loads of nectar per day for each bee, the total yield per colony should be greatly increased.

What are some of the conditions which will stimulate the bees to work with greater energy?

In addition to the ordinary measures which tend to make the bees within the hive comfortable, such as shade boards, when necessary painting the hives white, especially the cover if shade boards are not used and providing ample openings for ventilation, there are several things which should cause the bees to work with greater energy.

If all the honey is extracted from both the supers and broodchambers about twice each week the bees will work with greater spirit than if the honey is left within the hive until it is ripened and sealed. This would be an excellent way to secure large yields per colony if it were not for the fact that the green honey would not be saleable.

The effect of empty comb adjacent to the broodnest is nearly as effective in stimulating the bees to greater effort as extracting all the honey. A striking example of this came to my attention several years ago. The colonies in an apiary run for comb honey on the weekly visit plan were being examined during the swarming season for queen-cells and those colonies found to be preparing to swarm were treated by taking out half of their brood combs and inserting empty combs in their place, the plan being to remove the remaining combs of brood a few days later. Nearing the end of the first row I happened to look back along the row of hives just examined, and saw what I thought was three swarms beginning to issue. In this first row three colonies were found having queen-cells which were treated as just described and now these three colonies were apparently swarming. Closing the hive being examined, I went back to take care of the swarms, but discovered that these colonies were not swarming. They were working with so much greater vigor that I was led to believe that swarms were beginning to issue. This was during the early part of the forenoon and the changed conditions for some reason caused the bees to go to the field in greater numbers. On examination of the empty combs, which had been inserted into the broodchamber of these colonies, they were found to be literally covered with young bees which were digging almost frantically into the cells of these combs to repair them and prepare them for use. These young bees had suddenly found a new job, and their enthusiasm in the new work was apparently reflected by the field workers now streaming out of the hive after loads of nectar.

A similar thing may be observed at the time of giving the first super of extracting combs, if given at the beginning of the honey flow to a colony crowded with young bees. Within a few minutes after these combs are given, especially if they are old and dark from brood having reared in them, thousands of young bees enter the super and take possession of these combs and inserting empty combs in their place, the plan being to remove bees to rush to the field.

Apparently when a colony has its brood chamber crowded with young bees, it may become sluggish, but if many of these young bees are induced to leave the broodchamber and begin work in the super, the field bees are stimulated to go to the field in greater numbers, and apparently the more completely the young bees are induced to leave the broodchamber early in their lives and are given a job in the supers, the better the spirit with which the field bees work in the fields. Colonies which are working the best usually have the fewest bees in the brood-nest.

Giving additional supers so attractive to these young bees and placing them so advantageously that they accept the invitation to come upstairs is a tremendous stimulus in sending the field bees into the fields.

On the other hand if the bees are given supers containing foundation only, the young bees may be slow to enter and occupy such supers, and their presence in the broodchamber may cause sluggish field work. If they occupy such a super and draw out the foundation, as the cells are elongated and filled, there is less and less room between the combs, and some of these bees must go back down stairs if they are not yet old enough to go to the fields. As the first super approaches completion, fewer and fewer bees are needed there and finally when the honey is sealed, a small number of bees remain in the super to guard and take care of the honey. Under this condition thousands of young bees are forced back downstairs as work progresses in the supers and at the same time several thousand more young bees are emerging daily in the broodchamber, thus slowing down the work of the field bees until it may almost cease.

It has been stated that colonies may be too strong for best work, and that when there are too many bees in the hive they become dissatisfied. I believe that we may easily have too many young bees not yet old enough for work in the fields within the broodchamber, but there seems to be no limit to the number of bees that will work well in a hive if the bees are properly distributed throughout the hive and not crowded into the broodchamber. The importance of doing everything possible to attract the young bees away from the broodchamber when they are emerging in such great numbers cannot be over-emphasized.

Incomplete work apparently stimulates bees to work with greater energy. A colony of bees that surrounds its brood-nest with honey, sealing it down adjacent to the brood, as if preparing for winter, behaves as though its job for the season were complete, usually working poorly if at all in the supers. It is usually the weaker colonies which do this, though some strains of bees are more inclined to become sluggish from this cause than others . This condition can usually be broken up by inserting empty combs between the brood and sealed honey, thus giving the bees a new job. Apparently the colony should not be permitted to see the completion of its job in the midst of the honey flow, but new work should be given as fast as the bees are able to take it during the forepart of the honey flow.

Sealed honey between the brood and the supers may not only suggest the completion of the job, but also stands as a partial barrier between the supers and the young bees in the broodnest. During the early part of the honey flow at least, the beepkeeper who puts his empty extracting combs or his comb honey supers as close as possible to the brood undoubtedly induces the young bees to enter them more readily. During the latter part of the honey flow this apparently makes less difference. The beekeeper who employs every possible means of keeping his bees comfortable, and of giving employment to the younger bees that are not yet old enough to go to the fields, repairing the combs, ripening the nectar, drawing out foundation, secreting wax and building comb—anything that will take them out of broodchamber and distribute them elsewhere is at the same time inducing the field workers to go to the fields in greater numbers. I believe that when we accomplish a better distribution of bees throughout the hive and prevent a congestion of bees within the broodchamber that we shall induce the field workers to make seven or eight trips to the field per day and bring into the hives as many loads of nectar when it is available.

APIARY MORALE

MORLEY PETTIT, GEORGETOWN

I was put down on the programme for something in connection with the development of apiculture work in Ontario, but I found when I started to study about that it was out of my line. I have been in the practical beekeeping work now to the exclusion of everything else for three seasons and it was very difficult for me to get my mind back to the other study.

During the Great War we read in the press reports from day to day of the "morale" of our brave fighting men, or of the lack of it in the armies of the enemy. This has given us a name for a desirable condition which we have come to call "colony morale". Now it would seem fitting to apply the same term to the beekeeper and his helpers and speak of "Apiary Morale." As the workers of the bee colony are kept in working mood by proper conditions, so the morale of the human workers is maintained by good management.

Success in beekeeping depends largely on the mental attitude of the beekeeper. He must have faith in his business as a business, and not regard it as a sideline or an experiment or a stepping-stone. What attracted me most in the teachings of the late lamented Dr. C. C. Miller was the fact that he resigned both a musical and a medical career, in each of which his prospects were bright, and taught the world that beekeeping, a far more obscure calling then even than now, is one good road to health, happiness and a comfortable income. The splendid new Apiculture Building of the Ontario Agricultural College, probably the finest building of its kind in the world, is another tribute to the growing recognition which our important industry is obtaining. No one knows better than I, who was requested to draft plans for such a building seven years ago, which were rejected because they called for an outlay of one quarter of the amount spent for this building, the mountain of indifference and opposition which has been overcome to secure this small start towards a department to properly represent the industry.

The beekeeper who has made a right start by facing the fact that he has tackled a man's job worthy of his best effort, must have faith in his locality, or get into one which he can trust. I am coming to think more as years go by that there is no place in the world where the sum of beekeeping conditions excels those of the fertile lands of Ontario, and that there is less variation in localities than in the beekeepers who occupy them. Last but by no means least, the beekeeper who would succeed must have faith in himself and his methods and not be turned about by every wind that blows. In order to have this faith he must have within himself the elements which make for success in any line, good health, diligence, foresight, close observation, careful attention to details, but a sense of proportion. He must have the will-power to do the profitable things and to leave undone the unprofitable. He should be willing to take a chance when it is a chance of increased profit, but never when it is a chance of ordinary success versus failure. The only really successful beekeeper knows the "Why?" of the various manipulations; he understands the principles involved in good beekeeping and bases all his methods and appliances on these principles and not on what he prefers or someone else says.

Having all these elements of success within himself, the one who makes a success of a large commercial honey-producing enterprise works out a system of management which keeps all hands alert and the work running like clockwork in the most difficult and irregular of seasons. This takes not only careful planning but an abundance of supplies properly distributed and a good staff of active and willing helpers.

At the Pettit Apiaries the plans centre in the little office next the carpenter shop upstairs in the main building. It is just a small room plainly finished with a good desk and comfortable swivel chair, and a stove for the cool days of spring and fall. Around the walls are shelves of books, journals and bulletins, and files for records and letters. One window over-looks the home apiary for inspiration, although I can assure you that not much daylight time is spent here during the active season. This office is connected by telephone with the dwelling where the sister member of the firm has her desk for taking care of the selling and shipping records. In addition to being sales-manager, Miss R. B. Pettit is the queen breeder of the firm, and looks after all requeening and increase. With one or two helpers for the muscular work she takes her share of apiary management right through the season.

In 1920 there were seven yards with about 450 colonies, spring count. These were increased to 567 and will be in eight or nine yards in 1921. The weekly visit, which has always been our rule, has been extended to a trip to each yard once in eight to ten days according to conditions. Practically all supplies are kept at home to be overhauled, cleaned, sorted, etc., and taken out to the different yards on the regular trips as needed. Transportation is by means of a ton truck, a light truck and a Dodge Roadster which has good carrying space for queen-rearing appliances in the back. Whichever two of the cars the loads require go out each day, so we can do up one large yard or two smaller ones daily when necessary. We use three student helpers, who come to us in April and even have to learn the names of some of the appliances. They supply the muscular activity and try to follow directions, while we plan and direct and do a share of the work.

There has been a great deal of boasting on the part of beekeepers about how many colonies one man could manage alone. It is true that efficiency in this line should be cultivated to the fullest extent. At the same time I feel that a season spent in apiary work is just that many months measured off my life. If I have spent those months toiling harder, longer hours than my strength warrants, they have been wasted; but if I can profitably employ help and equipment so as to make the work pleasant, how much better it is! On the other hand, we think it pays to employ help enough so we can attend to details which many producers say they have not time for. We endeavor to strike the happy medium between management which is too intensive and that which extends so far as to become unprofitable. an excellent way to secure large yields per colony if it were not for the fact that the green honey would not be saleable.

The effect of empty comb adjacent to the broodnest is nearly as effective in stimulating the bees to greater effort as extracting all the honey.

To simplify the work, we have standardized equipment as far as possible without throwing away too much material that is still useful, or refusing to adopt changes which are sure to increase profits. In fact we keep an experimental department.

Besides having the best of equipment and plenty of it we study constantly for the best and simplest methods. These also are standardised as far as possible and are based on sound principles of bee-behavior in so far as they have been determined. Not only is each colony given individual attention, but varying conditions of each location are noted on the different trips. For this purpose we have a set of records which though exceedingly simple enable us to plan intelligently for the next trip. The individual hive records simply show the age and parentage of the queen, and the number of supers honey taken. The dates of dequeening and requeening are also noted on the hive. That is practically all the colony records kept. The queen-rearing records are another matter.

The record of visits to each apiary is kept on a plain 3 x 5 in. card, which bears a letter representing the name of the yard in question, such as N for the North yard, H for the home yard, and so on. These yard cards are filed in the desk according to the dates on which they are to be visited. Each visit to the N yard, for instance, is recorded on the N yard card with one or two words showing what was done, and the nature of conditions found, e.g., "May 11 finish clipping, supering,," "May 26, unpack and super, all have 1 and many 2 supers." If the record shows a yard well supered and no swarming impulse, and if the weather is backward the next visit may be delayed provided queen-rearing operations there do not demand attention. To avoid extra trips we must be sure to take all supplies that may be needed on the regular trip. While at the yard I jot down on a piece of memo paper items of importance to remember when preparing for the next trip, such as the nature of work just completed, special notes on condition of bees and supers, and supplies needed next day which are being left stored or must be brought. I find this absolutely necessary and yet sometimes have to drive myself to do it, as it is usually a scramble to get through in good time, and it is all so plain then that there seems no danger of forgetting. But tomorrow it will be a different yard and the next day another, until the memory of details becomes scrambled.

There is a particular pocket where these memoranda go and this pocket is emptied into a certain wire basket on the desk, and this basket is overhauled frequently in the evenings or early mornings to write up the records and notes for future trips. Records go on the yard cards concerned as indicated above. Notes of supplies left or to be taken are used for making out the load list for that yard next trip. The Load List for each trip is another item which seems like a small matter, yet I have found it very helpful in relieving me of responsibility. The following would be a typical list handed to the man who is to go with me to the K yard. "List for K, Mon., June 28, 1920. Ton truck, water rad., oil motor, pump tires, 65 ℔., 50 supers combs, 25 queen excluders, 10 cloths, smokers, veils, lunches, saw, hammer, nails, hive tools, drinking water." He carries this list around with him while he is making up the load and checks it over the last thing. If he did not have the list we might arrive minus some essential such as smokers. I have never known the lunches to be forgotten. For personal use I also make a list of work to be done which I might forget. These lists are fastened with a wire clip to the yard card which is filed ahead under the date assigned for the next trip. This is simply the "tickler system" so common in business offices.

If we ever get where we have more store combs than we are likely to need it will enable us to manage more yards with the same number of trips. So long as we are increasing this is not likely to be, especially since we are not at home for making up supplies in winter, but must work that in with the work of the active season. If each colony could be given before the beginning of the flow all the combs it would likely fill the next visit could be longer delayed. The next best is to give each two or three supers, then add foundation as further room is needed, keeping some combs in reserve at home for a big run in many yards that are so fortunate as to get it. The Yard Card records are particularly valuable here, and the truck with capacity for a hundred supers combs enable re-inforcements of storage space to be brought quickly to the front where there is the greatest need.

We open up and do shop work in April. As weather permits queens are clipped and first supers added in the winter cases. Unpacking is finished in May before a second super would be needed. Queen rearing is started as early as possible so that failing and swarming queens may be replaced as soon as discovered. By the latter I mean those whose bees persist in building cells. We extract in late July and early August and return most of the supers to the hives. September is for final taking off and packing, October for feeding and November for finishing up.

We find more advantages in the central plant system from year to year.

Specializing is essential to the highest success. Very few men men succeed in practising law and medicine at the same time. I would not know how to manage without a fairly well equipped office. Others may be able to keep in mind a picture of conditions at all their yards, and carry their plans in their heads, but where so much has to be crowded into a few months it is risky. Then we have a variety of locations, and always changeable seasons. With plans well charted and work well up we are ready for emergencies. Otherwise one is liable to see what should have been done after it is too late.

FACTORS INFLUENCING THE SPREAD OF EUROPEAN FOULBROOD

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In the present discussion of European foulbrood which has caused so great loss to beekeepers, there are certain things that may be taken for granted and omitted. I shall not discuss the cause of the disease, the action of the casual bacterium on the diseased larvae or the variations in the symptoms as observed by the beekeeper in the apiary. These have been adequately discussed in the literature of the subject and are now generally understood. Neither will I discuss primarily the activities of the bee colony in eliminating the disease, nor the remedial measures which have been described and found successful in the hands of beekeepers. The object of the present discussion is to point out certain things, so far not sufficiently emphasized, that play a large part in the control of this disease and which must play a still larger part if we are to have the treatment and control fully effective.

The Nature of the Disease

The way in which this disease behaves in the colony is now well understood, thanks to the work which has been done on the cause of the malady and especially to the work which has been done by various beekeepers in their efforts to eliminate it. Since some of these facts are essential to the present discussion, they will be reviewed here briefly.

(1) European foulbrood is a disease which attacks the colony chiefly in the late spring and early summer. As has been pointed out elsewhere, the first brood of the year usually escapes with little loss, and this is an important fact in the devising of preventive measures, as well as in a study of the factors influencing the spread of the disease. Under usual circumstances, to be discussed more in detail later, the disease disappears later in the summer. The disappearance of the disease, or its reduction in the hive, takes place when the main honey-flow of the year is in progress. This is usually expressed in the eastern part of the continent as occurring at the beginning of the clover honey-flow. In some places, like the buckwheat region, the disease may persist until later in the summer, and in some rather rare cases the disease may appear in late summer, having been absent earlier.

(2) It is now generally recognized that European foulbrood is a disease of weak colonies, and in all the directions of preventative and remedial treatment it is emphasized that preceding all other measures the colonies are to be strengthened in some manner. While this is universally recognized, it is probably true that the average beekeeper has not seen in this fact the most important factor in the control of the disease. Among the

earlier recommendations for the treatment of what we have reason to believe was European foulbrood, Dzierzon, the celebrated Polish beekeeper, laid stress on the necessity of strength of colonies, and unfortunately for the beekeepers of the new world this important factor was long overlooked.

The weakness of colonies which leads to the attack of this disease quite commonly occurs as a result of poor wintering, and for this reason the winter problem needs even more emphasis than has been placed on it. A second factor, and one which has not received the attention which it demands, is the shortage of adequate stores in the spring while the colonies are building up in preparation for the honey-flow. As will be seen later, this is not only the indirect predisposing cause of most cases of European foulbrood but it is the direct cause of so many of our failures in the honey crop that it demands all the attention of which we are capable.

(3) The factor which has received the most attention from beekeepers is that inferior races and strains of bees are more susceptible to European foulbrood than are better bees, like the Italian race. This is an important factor in the control of the disease, and one which should in no cases be neglected, yet it is doubtless true that of all the precautionary measures which we take this is the least important. This will be discussed at length later in this discussion.

With these three facts about European foulbrood before us we are able to understand the way in which the preventive and remedial measures used for this disease operate, and these facts form the basis for our present-day treatments. In order that we understand the relative importance of the various factors, however, and that we be able to apply these remedies intelligently, it is desirable that we study certain other facts concerning the disease which have not been discussed sufficiently. These facts may be placed under two heads: the history of the spread of the disease and the examination of the present geographical distribution from all available records.

The History of the Spread of the Disease

European foulbrood was first recognized as distinct from the other disease of the brood of bees, American foulbrood, when it appeared in the Mohawk Valley of New York State in the early nineties. The first accurate differential diagnosis to be made in America was prepared by E. R. Root as an editorial in Gleanings in Bee Culture in 1899, and in the same issue of that journal appeared an article by N. D. West, for so long an inspector in New York, in which he pointed out some of the most important differences between the two diseases that we now know as European foulbrood and American foulbrood.

There was a belief current among New York beekeepers of that time that the disease had been brought to the Mohawk Valley from the southern part of that State, although others stated that it was brought in with bees "from the South", no locality being designated. In any event, no one believed that the disease originated in the Mohawk Valley, and just as is the case today, each case was transmitted from some other infected colony somewhere. A study of the earlier literature on brood diseases of bees indicates rather clearly that European foulbrood had been present in a number of places in the United States previously, although naturally since the diagnostic symptoms were not clearly given this must always remain a matter of speculation. As an example of the probable cases of European foulbrood earlier than the outbreak in the Mohawk Valley may be mentioned the record in three articles by a beekeeper in Fayette County, Pennsylvania, Milton Hewitt, (Gleanings in Bee Culture Vol. XI, p. 256 and p. 537, 1883, and Vol. XIII, p. 699, 1885), in which he gives a fairly good description of the diseases which we now call European foulbrood and tells of the successful use of Italian bees in its control. Following his article other beekeepers in Pennsylvania reported the same condition, but as there was little discussion of the condition it was not recognized that they were dealing with a disease fundamentally different from the other brood disease which was then better known. It is interesting to note that since requeening was a successful treatment, the disease was considered as hereditary.

The earlier European literature on the brood diseases records the fact that two separate diseases or manifestations of disease had long been noted by the better beekeepers of various European countries. Dzierzon draws careful distinctions in the treatments to be given, these being quite like those that we use today for the two diseases. Furthermore the work which was done on the cause of "foulbrood" by Cheshire and Cheyne in England in 1885 was beyond doubt done on the disease which we now know as European foulbrood. These facts are here stated to make it clear that we are here dealing with a disease which had long been troublesome to beekeepers. Of course, this need not be emphasized at too great length, because none of us would be apt to expect a new disease to originate spontaneously.

Following the differentiation of the disease as it appeared in New York, it spread rather quickly to other counties of eastern and central New York and in a few years was known to be present in western New York. During this discussion in the bee-journals on conditions in New York, beekeepers from other parts of the United States were recording experiences with a disease of the brood of bees which we now think was the same disease. It was not long before there was reason to believe that the disease was established in certain widely separated parts of the country. The point which needs emphasis at this time is that this disease did not trouble the beekeepers of the United States seriously until the nineties. Naturally the increase in the importance of beekeeping as a commercial enterprise augmented the shipping of the colonies of bees from place to place, and as a result of this activity there was better opportunity for European foulbrood to spread to new localities, since it is not apt to spread in shipments of honey, as is the case with American foulbrood.

In 1906 the Bureau of Entomology began work on the brood diseases of bees and in connection with this work many samples of suspected brood have been sent to us by beekeepers and apiary inspectors for examination. A careful record of the point of origin of these samples has been kept in order that data might be available on the geographical distribution of the diseases in the United States, and up to November 1, 1920, samples have been received to the number of 7557. Naturally so complete a study of the distribution has shown European foulbrood to be present more widely than had been supposed or recorded, but in only a few cases, as in the far western states, is there reason to believe that these records reveal the introduction of the disease into new general localities. In other words, we believe that the general distribution in the eastern part of the United States occurred before we began this work. Of course, innumerable cases could be cited of the spread to new towns or even to new counties, but, so far as the spread to new states is concerned, this took place in most cases earlier than we have any record. It, therefore, appears that the period of rapid spread of this disease in the East was chiefly during the nineties.

To understand this spread it is necessary that we study the beekeeping of that period. In Mr. George S. Demuth's careful analysis of the evolution of American beekeeping* he divides that time since the invention of the movable-frame hive into several eras, namely, the era of box-honey, the first era of extracted honey production, the comb-honey era and lastly the present era or the second era of extracted honey production. It thus appears that the spread of European foulbrood occurred chiefly in the comb-honey era, and to see the reason for this it is necessary that we for a time depart from the discussion of European foulbrood and examine briefly the type of beekeeping practiced by the best beekeepers and also by those less skilled during this period.

In the production of comb-honey all the problems of the beekeeper are greatly intensified, this being especially true of swarm control. As Mr. Demuth has so well brought out, we owe a great debt to the beekeepers of this time for the methods which they so carefully devised, and it is probably true that we have today few students of beekeeping who are the equals of the masters of that day. It is not the purpose of this paper to repeat the ground covered by Mr. Demuth nor to pay tribute to the men of that period who did so much for the upbuilding of beekeeping. In spite of this good work, the effect of this era on beekeeping was disastrous in some respects, and for the purposes of the present discussion it is necessary to look at the darker side of the period.

In the production of comb-honey it has long been recognized that the bees go into the supers with difficulty, unless the brood-nest is well filled with bees and brood. With the methods of wintering then in vogue and the usual spring management with beekeepers of the comb-honey era had difficulty in getting colonies strong enough to go into the supers and this is well shown by the numerous discussions in the bee-journals of that day as to means of inducing the bees to go to the supers. Recognizing this difficulty, they tried various expedients but seemingly failed to recognize the cause of their trouble. Finally they hit upon the idea of making the brood-nest smaller, and thus more easy for the beekeeper and the bees to fill. From this idea came the eight-frame Langstroth hive, and in its train came even smaller hives of the period. It will be recalled also by those who were familiar with the beekeeping literature of that day that in order to force more of the honey out of the brood-nest and into the supers there arose the practice of inverting the combs of the brood-nest, thus not only forcing the honey out but also removing the honey between the brood and the super which acts as a barrier to rapid storage in sections. With this inversion of the combs there came the further idea of contracting the brood-nest on which the swarm is hived in order to give the bees less to do before they get to work in the supers, and out of this grew the idea of contracting the brood-nest of all colonies to perhaps five frames at the beginning of the honey-flow, whether they swarmed or not, so that more honey might be stored above. The characteristic of the practices of this period in beekeeping was, therefore, the getting of all the honey possible into the supers and out of the brood-nest, and to do this all manner of apparatus was devised.

Another thing which should here be mentioned, although it has only an indirect bearing on our present discussion, is the fact that previous to this time the beekeeping apparatus was not standardized as it is today. Every beekeeper at first made his own hives and other equipment. As Mr.

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*Demuth, George S., 1920. The evolution of beekeeping practice. American Bee Journal Vol. LX, pp. 153-155; 190-191.

Demuth has pointed out, at this time there was an increasing tendency in all lines to manufacture things in factories, rather than at home, and this lead to the establishment and enlargement of factories for the manufacture of bee supplies. This in turn lead to a reduction in the number of types manufactured, since no factory however complete could make all the different kinds of hives used by beekeepers fifty years ago. Then, too, the comb-honey era was one of rather long duration, giving ample time for the establishment of standards for the whole continent. In connection with the fixing of standards for hives and equipment there was at the same tme a tendency to try to get hives and other apparatus which would virtually do the work of the beekeeper, and at this time the beekeepers looked on apparatus as more vital than most of us do today. Now we are rightly coming to look on the bee-hive as merely a tool of the beekeeper, not as the vital factor in honey-production. A serious defect of the comb-honey era was this reliance on equipment.

It need not be pointed out to a beekeeper of today that the progressive practices of the comb-honey era resulted in the constant reduction in the size of colonies. Winter losses were excessive, even greater than our present needless and extensive losses. Swarming was worse with the methods then used, resulting in the division of the forces of the bees and in many small colonies. The equipment, as has been shown, was not conducive to strong colonies, although, as we now know, a man of the right degree of intelligence and skill could produce a full crop with any of them. Without going into the merits of these numerous hives, it is clear that their defects or merits depend on the operator, and for any of them good results could be obtained. The variation was only in the greater difficulties with some.

When we recall that at this time there was an increasing tendency for those owning bees to buy their equipment at factories, it is clear that within a few years there were scattered all over the country a lot of hives which could be used successfully only by experts, yet these hives were in the hands of beekeepers of all grades and conditions. When a hive requiring expert care falls into the hands of an unskilled novice, he is almost sure to fail, and such beekeepers did fail by the hundreds and thousands during the comb-honey era. The teachings of the time were also suitable only to expert management, not to side-line or inexpert beekeeping, and many who conscientiously tried to follow the plans laid down were unable to do so. It is therefore not a matter of surprise that we learn of a decrease in the honey-crop of one of the States of 75 p.c. in a period of twenty years, and the same story is more or less true of the whole of the clover region, in so far as it is located in the United States. The methods and apparatus of the comb-honey era are, therefore, responsible for the fact that beekeeping declined in many parts of the United States almost to the vanishing point, and it is a sad fact that in many of these parts of the United States there is today almost no beekeeping.

It will be obvious that certain changes outside of beekeeping also contributed to this decrease, among which were those incident to the increase in intensive agriculture. The cutting of the basswoods also made some places less favorable for beekeeping. In spite of the loss of part of the fall honey-flows and the decrease in basswood, the more recent planting of alsike clover has probably made these regions better for beekeeping than ever before, yet beekeeping has not yet returned to the place which it once occupied. While all that I have said about the brilliancy of the work done by the better beekeepers of the comb-honey era is true, the fact remains that this era is a dark age in the history of beekeeping on this continent, and it will take the combined efforts of all of us to recover from the set-back then experienced. Probably beekeeping will not have recovered fully until most of us have ceased to work in this field.

It is not my purpose to place the blame for this situation, although in reviewing the field we can scarcely fail to see wherein mistakes were made. The important thing to observe is that those who made the mistakes, and who so fatally injured beekeeping, did it with the best of intentions and in an effort to aid those who were engaged in the work. Some of these ill-advised leaders paid the price, some of them also lost all their bees from bad wintering or disease. Only the beekeepers who were located in unusually favored situations were able to stay in beekeeping with the apparatus and practices then advocated. The defects in the comb-honey era arose in large part from a departure from a study of the fundamental needs of bees in an effort to devise labor-saving apparatus.

It is, of course, difficult for one who has not long thought of this aspect of our history to accept it immediately. In substantiation of this, it may be recalled that many beekeepers stated that the flowers no longer secreted nectar as they had previously. In Michigan, for example, Heddon once said that it was no longer possible to make a living from the bees; which certainly seems strange when we see what the beekeepers are doing with better methods in that State to-day. You will recall also that for a time some beekeepers of the clover region advocated the feeding of sugar syrup to bees to make "sugar honey," not as an adulteration but because they believed that there was no longer sufficient nectar available for honey from natural sources. In the light of what we now know about the methods of that era and of the present resources of the regions, we are almost constrained to smile at the hardships of these beekeepers, but it is too sad a fact to call forth smiles.

We are now prepared to understand why it was that European foulbrood spread with such rapidity in the comb-honey era. This disease of weak colonies had ideal conditions for its spread, and there is every reason to believe that it was then found in locations where it does not now exist. It is perhaps unsafe to guess as to results if conditions had been different, but it seems safe to say that if better beekeeping methods had been practiced then the disease would have spread much more slowly, and might have been kept under such control that many regions now infected would be free. When we take into consideration the defects of the time and especially the fact that American beekeepers were then unfamiliar with the present treatments, long before devised by European beekeepers, we can understand why there were such heavy losses from European foulbrood. At that time when an American beekeeper found a disease of the brood he applied the shaking treatment, which was the only treatment then known to them, and, as we now know, they made matters worse rather than better when applying the treatment to European foulbrood. While we have to thank the leaders of the comb-honey era for the brilliant work which they did in beekeeping, we still pay the price of their mistakes, even unto the third and fourth generation of beekeepers.

THE PRESENT DISTRIBUTION OF EUROPEAN FOULBROOD

The methods of the comb-honey era and the development of commercial beekeeping gave opportunity for European foulbrood to spread throughout the continent, and it is probable that there are few locations of any size in the United States to which at some time or other the disease has not been carried. Yet when we come to a study of the present geographical distribution of this disease, we find that it is not everywhere present, and there is apparent a great variation in its virulence. In certain cases there is definite record of the previous presence of the disease, so that it would appear that there are conditions under which the disease can not thrive. We often hear beekeepers say that European foulbrood loses its virulence after a time, but this is incorrect, as we shall see. In the study of the preventive measures to be used against this disease it, therefore, is of the utmost importance that we learn the characteristics of those locations where the disease is rare or absent, for from such data the beekeeper who is troubled with European foulbrood may learn what his locality lacks and may the better make up for its deficiencies.

Since most of the beekeepers of Ontario are located in what we may broadly designate as the clover region, the present discussion will be confined chiefly to that region, or rather to that part of it which lies in the United States, for on that side of the line we have definite records of the distribution from the record of samples examined in the laboratory. I should perhaps explain that I am here using the expression "clover region" rather loosely, meaning by it that part of the north-eastern United States where white and alsike clovers grow and in which they furnish more or less nectar. It is, of course, recognized that these clovers grow to some extent throughout the moist parts of the United States, but in the southernmost parts of the East they secrete little or no nectar, while in the dryer parts of the country they are also useless to the beekeeper. It has long been known to beekeepers that there is a great variation in the amount of nectar secreted by these clovers in different places, and it will therefore be evident that the clovers are not dependable in all parts of the northeastern United States.

In addition to the facts that the clovers need considerable moisture to do well, and that they secrete less well or not at all where the summer temperatures are high, there are certain other factors which greatly influence these plants. Among these the most important from the standpoint of the beekeeper is perhaps the character of the soil. These clovers will make a fair growth on soils which are deficient in lime, and it is claimed for alsike especially that it will grow on soils too acid for a good growth of red clover. It is also recognized that while clover is a plant which is tolerant of an acid condition of soil, and I have seen this plant growing in soils which on test proved to be as acid as those usually found in bogs. In spite of the fact that these plants may grow under these conditions, it is clear from the available data that it is only under favorable soil conditions that the plants are in a sufficiently thrifty condition to secrete nectar abundantly. Furthermore, there is a successive gradation in nectar secretion, the greatest secretion occurring only under the most favorable soil conditions and with a gradual decrease until the plants are in soils too acid for any secretion at all. In the clovers on acid soils mentioned above I found no bee visitors. Attention should also be called to the fact that when the climatic conditions are most favorable, the clovers secrete nectar in locations where they are devoid of nectar under average conditions. I shall not take the time on this occasion to dwell at great length on these factors, but shall ask that you bear these statements in mind in the following discussion of the distribution of European foulbrood. It need not be pointed out to a group of beekeepers of the clover region that these facts should play a larger part in the location of apiary sites than they have in the past, and that it is this type of study of beekeeping flora which will be of the greatest service on the future of beekeeping. Please bear in mind that what I shall here say about the variations due to soils should not be applied to honey sources other than white and alsike clover.

Within the clover region we find three general types of locations, so far as their susceptibility to European foulbrood is concerned: (1) locations in which the disease is present year after year and in which treatment is difficult, (2) locations in which the disease occasionally appears with disastrous results unless preventive measures are taken, but in which treatment is easy and the disease often disappears without treatment, and (3)locations in which there is none of the disease, in spite of the fact that it has been repeatedly introduced. Perhaps it would be more accurate if we were to change the designation of the third group of localities to be those in which the disease may have been present in former years or under different management but from which it was immediately eradicated as soon as good beekeeping methods were adopted. With the progress in beekeeping methods of late there has been a decrease in the second group of localities with a corresponding increase in the third or best group.

As an example of the first type of locality, those in which the disease is always bad, or epidemic to use the term of the pathologists, we may cite the buckwheat region of New York and Pennsylvania. I presume that the statements here made will apply to the buckwheat region of Canada, but as I am not sure of this I shall limit my statements to the United States. In the typical buckwheat region the soils are acid in reaction being revived from shales and sandstones. There is a marked deficieny of lime in the soils. When the early settlers went to this region red clover grew rather well but in a comparatively short time the soil became "clover sick," which in this case was nothing other than a lime deficiency. As a result chiefly of this failure of red clover, the region declined in agriculture and many of the settlers went futher West to better soils. At present alsike clover is used largely where the red clover was formerly used in this region, and this clover is sufficiently tolerant of soil acidity to be useful as a forage crop and soil renovator. From the standpoint of the beekeeper, however, it is not satisfactory, for the secretion of nectar is good only rarely, in other words it is under only the most favorable climatic conditions that the bees are able to get a clover honey crop in the buckwheat region. In this region the main dependency of the beekeeper is buckwheat, which begins secretion about August. When buckwheat begins to secrete, European foulbrood usually begins to disappear, the colonies build up, get good stores for winter and many of them live through, only to contract the disease again the following spring. The buckwheat region constantly has on hand enough European foulbrood to seed down the world, and while the better beekeepers of this region have learned how to control the disease, the constant recurrence of the disease has gradually worked on the beekeeping of the region until today there are counties in New York and Pennsylvania in which there are few bees, almost no commercial beekeeping and small hope for the future until a new type of beekeeping can be introduced.

Another location in which European foulbrood is constantly present is the Kankakee swamp of Indiana and Illinois. Here the disease has been present for decades: here also it disappears when the Spanish needle secretes in late summer, and reappears the following spring. Other regions within the clover region in which the disease constanly recurs are the sandy areas of Michigan, the loessial soil areas of Illinois and the sandy soil regions of New England.

As an example of locations in which the disease occasionally appears but is easily controlled may be given certain places where the clovers are better than in the locations just given but in which the plants do not usually find the most favorable conditions. Only when climatic conditions for the season are the best is there the greatest secretion. As an example, we may cite most of the State of Illinois. This State was covered by various glaciers in the geological past, but only a small part of the State was covered by the latest or Wisconsin glacier. The soils of most of the State are therefore older, and as a result of their greater age the lime has leached out more completely, making the soils less good for nectar secretion from the clovers. At one time Illinois was one of our leading States in the production of honey, but today it has had to take a back seat, due to the decline of the comb-honey era that I have mentioned and especially perhaps to the increasing deficiency of lime in the soil. Aside from a few outstanding figures in beekeeping, we find that there are relatively few extensive beekeepers in the State today. While under such conditions we expect European foulbrood to be present, the soils of most of the State are so rich that there is usually some secretion of nectar from the clovers and, under these conditions, the disease disappears in good years and is present and troublesome only when the climatic conditions are less favorable for the clovers. In lean clover years the losses from European foulbrood are heavy.

Naturally beekeepers of the clover region are most anxious to learn where the nectar secretion from the clovers is so good that European foulbrood rarely if ever occurs. We are all looking for such places. In order to explain this fully it will be necessary for me to introduce into the discussion a further fact concerning nectar secretion from the clovers, probably applicable to all plants as well, namely that secretion is better as we go northward within the range of the clovers. For maximum nectar secretion from the clovers there is required a relatively low average summer temperature, and not only must the average temperature be low but there must be a daily fluctuation in temperature so that the night temperature is low and that of the day higher. We find these conditions as a rule in the North and, for this reason, the north country has a great future in beekeeping, as soon as we better master the wintering problem.

Not only is the clover nectar secretion better in the north part of its range, but as a rule the soils are more favorable. At the time of the last or Wisconsin glacier, the older soils of the region were covered over with a new layer of soil derived from the underlying limestone of parts of this region, making the finest possible conditions for the growth of vigorous clover plants. We may state it as a general fact that the best of the clover region lies within the area covered by this last glacier, for, while there are a few good clover areas outside the limits of the Wisconsin glacier, they are rare and small in extent and usually most irregular in their yield.

Within the area covered by the Wisconsin glacier we find that some of the soils were derived from shale and sandstone, as is the case in part of the buckwheat region already cited, but many of the soils were derived from rocks containing considerable limestone. In the last named areas we find the best possible conditions for nectar secretion from the clovers. Confining the discussion to the United States, we find the best of the clover region in middle and part of northern New York, north-western Ohio, north-eastern Indiana, and parts of Michigan, Wisconsin and Minnesota. The soils known to soil specialists as the Miami series, found in the Middle-West, are, so far as known, about the best from the standpoint of of the beekeeper. Another series of soils of value are those derived from lake sediment in the old lakes which at one time covered parts of Ohio, Indiana, Michigan and Wisconsin, known usually as Clyde soils. Until these are drained they may be too wet for clovers, but when drained they form some of our best clover territory.

On Miami soils we find practically no European foulbrood, Repeatedly the disease has been carried to locations on this series of soils only to disappear without treatment. The late Dr. Miller was located on such soil, on the edge of the moraine formed by the receding Wisconsin glacier. To the south of him, only a short distance, were many apiaries suffering from European foulbrood but he was not troubled by it until one year when the clover was a total failure, the infection was near at hand and he had a bad infection. That was one of the best accidents that ever happened to the beekeeping industry of America, for it gave him material for the working out of the treatment which we now use, and this work is perhaps the finest thing that he ever did for beekeeping. However, it is interesting to note that he had only a slight infection the next year, and after that time he found only a few diseased cells from time to time. The region is not one in which the disease can remain virulent, for the secretion from the clovers is too regular, heavy and reliable.

The lake bed soils of the Clyde series are also good in lime content, but until they are drained they may not be quite favorable for the clovers. These areas in Ohio, Michigan and Wisconsin have some European foulbrood in them, but it is important to note that the disease is rarely bad, usually responds at once to treatment and in many cases, in the hands of the better beekeepers, disappears without treatment. In years when for any reason the clovers fail to secrete, the disease is at hand ready for an attack.

Taking the clover region as a whole, we find that the parts where European foulbrood is epidemic are those of acid soils, the regions where the disease is perhaps present but not serious are those of better soils but still with some lime deficiency, while those in which the disease is negligible are those of the finest soils conditions so far as lime content is concerned. It must again be recalled that secretion increases as we go northward and in the North we may get maximum secretion where the soils are not ideal. It is interesting to note that most of the prominent beekeepers of the comb-honey era were located on Miami soil locations.

If time permitted and if all the distribution maps could be shown, many more cases might be cited of regions falling into all of these classes. The data at hand makes it evident that we may look on European foulbrood as having already reached all the places in which it may be serious to the beekeepers. Our effort for the future lies not in preventing the further spread of the disease but in controlling it where it is already present. Quarantines are no longer called for, and the great need is for an educational campaign in order that beekeeping may recover in those places from which it has been wiped out by the disease and by bad beekeeping methods.

I should like in closing this discussion to repeat what I said in the beginning that the statements here given regarding soils must not be applied to any honey-plants other than the clovers. Perhaps there are other soil requirements of other plants that play as large a part in their secretion of nectar, but our available information regarding the sources of nectar are so scant that we can only speculate about these things. The greatest advance of the future lies in a study of the honey-plants from the standpoint of nectar secretion, and until we have data of this kind the beekeeper will continue at enormous expense and often at the cost of much of his crop year after year to learn his locality from his own observations. This is always a costly method and is responsible for the fact that some beekeepers give up in disgust after making a trial in a poor place.

Let us now see what data are available from the geographic record which will serve us in our efforts to devise preventive measures. Limiting ourselves to the clover region, we find that where there is a reliable and dependable honey-flow from the clovers the disease is absent. Clover secretion begins within three months of the beginning of normal brood-rearing in the spring, and therefore comes early enough to act as a preventive of the disease. Other honey-flows which come later are too late to ward off the disease, as seen in the case of the buckwheat region. Taking the United States as a whole, wherever the main honey-flow comes early and is sufficiently heavy, whatever the source, this disease is rare, unless, as in California, there are frequent years when secretion fails. It seems therefore that the greatest factor in the natural control of the disease is an early, heavy honey-flow.

Having before us these two lines of observations on European foulbrood, namely the historical discussion and the examination of the locality conditions unfavorable for the disease, there are certain things which loom up as of vital importance in preventive treatment. In an earlier day of beekeeping we had a great spread of this disease because the colonies were weak, and today we have most of this disease in those regions where Nature fails to provide conditions favorable for strong colonies in the spring. It would therefore appear that strength of colony is the most important factor in the prevention of European foulbrood. In so far as the damage from weak colonies due to improper apparatus and methods are concerned these we may manage without difficulty. The day of the small colony is passing and in many different lines beekeepers are discussing remedies for this defect. We seldom now find a beekeeper who sticks to the small hives of the comb-honey era, and these hives are now used only by men who have the skill to use them successfully. The less skilled beekeepers who bought them have dropped out of beekeeping. The deficiencies of apparatus need not worry us so much now, for there has been an awakening on the matter of strong colonies that will last. The recent deep interest in the subject of wintering is a good example of the changes that have come to the industry.

The phase of the subject which needs most attention at present is the control of the disease in those localities where Nature fails to provide a sufficiently early honey flow. To understand the proper procedure in this case we must for a time look at the behavior of the bees in the spring as compared with their activities at other seasons to see wherein we may get relief. In the spring the queen will lay eggs and the workers will increase the number of larvae which they will feed just so long as there is plenty of honey and pollen in the hive, even without a honey-flow. They continue to increase the brood of the hive until the peak is reached, usually at about the time when secretion is normally due from the clovers, and past the time of the worst attack from European foulbrood. They decrease brood-rearing in the spring, however, just as soon as a shortage occurs in the honey and pollen supply. At other seasons they are not stimulated to excessive brood-rearing by the mere presence of honey in the hive and it is later only under conditions of a heavy honey-flow or by stimulative feeding that brood-rearing may reach its maximum.

When, therefore, Nature habitually fails us in the spring, we may make up for this deficiency by supplying the bees liberally with honey. When Nature sometimes fails us, as learned from dear experience, here too we may insure brood-rearing to the maximum by leaving honey in abundance, which is ready when needed and not used unless needed. When Nature never fails, which happens perhaps not at all in this world, then we need leave little for the bees in the spring. In short, European foulbrood prevention consists in supplying the deficiencies in the needed food supply in the spring in our respective localities.

I stated earlier in this paper that strength of colony is perhaps a greater factor in the control of European foulbrood than is the use of resistant stock, and I think that by this time the ground for this belief will be clear. Perhaps a further word on this is needed. In some locations, where the disease is epidemic, prevention requires the use of resistant stock, plus all the conditions most favorable for building up the colonies in the spring. In other localities, where for example the clovers are better, the use of resistant stock need be supplemented only by a smaller amount of preventive food supply. In the most favorable conditions, as in central New York, beekeepers often say that the use of resistant stock is alone necessary for eradication of the disease. From this array of opinions and experiences it might be concluded that resistant stock is the universal requirement, and of course, its use should never be neglected. However, the great deficiency is strength of colony for in the more favored locations the disease does not occur in any colonies. Weakness of colonies permitted the disease to spread badly in the comb-honey era, it permits it to stick tenaciously in some places today, and is perhaps the greatest factor in retaining this disease as a serious pest of the apiary.

The subject assigned to me today deals only with European foulbrood, yet it requires no further discussion to show that in colony weakness lies the greatest drawbacks in all lines of beekeeping today, as in the past. We are still paying the price of the weak colonies of thirty years ago. We have not all yet learned the lesson. We do know that it is the strong colonies that get the crops. No factor is so important in ironing out bad seasons and in making beekeeping a stable business as the means for getting stronger colonies even than the best of us have today. When we get such colonies, then European foulbrood will be for us a thing of the past and the profits of beekeeping will be more regular than they now are and we will be more business-like beekeepers.

Of all the factors in getting such colonies, no problem is so complex as that of wintering. This must be mastered before we may succeed. Having done this, we must learn that more honey is needed by the bees than is left, if we follow the advice even of most of our present leaders. To leave only thirty pounds per colony is to gamble with Nature, and the gambler loses too often to make that a legitimate business. When we are taught that we must leave more honey, and when we all do as we are taught, not only will wintering be simplified but beekeeping will cease to be a gamble and a new and brighter day will dawn for beekeeping.

Mr. Holtermann: I would like to ask Dr. Phillips why European Foulbrood does not get the footing in clover sections that it does in the other?

Dr. Phillips: If I had more time I could have elaborated that more fully. The difference comes in in the natural strength of colonies under those conditions in the spring. In the buckwheat region, the furthest example from that, there is a tendency not to build up in the spring on account of storage. We get every flora for the building up of colonies in the spring.

Mr. Holtermann: With us, the buckwheat section as a rule is the very best locality for spring building up because of the variety of blossoms on the sandy and lighter soils.

Dr. Phillips: I cannot say anything about Canada, but it is not true in New York and Pennsylvania. Of course, I do not know the soil conditions, because the buckwheat land as we know it in New York and Pennsylvania, is formed by rock and shale. On that formation the United States grows over two-thirds of all its buckwheat. We have found from dear experience that buckwheat is not a good farm crop. It is on that one geological formation our farmers have found it profitable to grow buckwheat. I would like to know before I get away from Ontario whether you have a serious time with European foulbrood in your buckwheat region?

Mr. Holtermann: I am supposed to have some experience with European foulbrood, and I confess I know very little of it, and have still a very wholesome respect for it. I said in the spring of this year with the unfavourable weather that we had the most favourable conditions we had had for years for the spread and development of European foulbrood, and I saw more touches of it among our bees and more than that I noticed some of it in the fall, which I do not think I have done in the previous year. I have a sort of theory that the nectar and honey that is obtained from buckwheat contains something that tends to the development of European foulbrood more than in the clover. That is only a speculation, and I have no proved ground for saying it. I put some bees on buckwheat and on territory where another man had put them, and the next year European foulbrood nearly wiped them out. And the question came up here of stock that was foulbrood resistant. I bought some bees at East Aurora, N.Y., last fall, and brought them over this spring. The weather was so unfavourable, and I had to go over so much heavy clay ground that it was impossible to run a car, so that they were left very much to themselves for some time, and when I went over they had a very bad dose of foulbrood, and I marked them No. 1, 2, and 3, according to their strength, and said, "Now, I am going to try something, I am not going to change these queens at all," but just piled young bees into them and never changed the queen at all and the disease disappeared.

Mr. Dunn: With the limestone ridge on which our bees are, we say we can snap our fingers at it. I always like the limestone land, but we have a heavy flora. But last fall we put 72 hives into a buckwheat country in a marsh, just as soon as the clover was gone. They filled up with aster honey, of which we grew very little, and it all candied every bit of it right in the comb. Those that came back had the worst European foulbrood I have seen for many a day—a sort of foulbrood very much like the American.. I think we will keep our bees on the limestone ridge after this.

Mr. Holtermann: Dr. Phillips speaks of the acidity of the soil. Do you think in your experience in taking alsike clover field and sowing lime—does that increase secretion of nectar in the blossom?

Dr. Phillips: I cannot answer that, as I do not think it has ever been tested out.

DIAGNOSIS OF AMERICAN AND EUROPEAN FOULBROOD

RUSSELL H. KELTY, DEPUTY APIARIST, MICHIGAN AGRICULTURAL COLLEGE, EAST LANSING.

I believe that if every man could correctly diagnose American and European foulbrood, every beekeeper who has enough money in the business to make it important for him to know the difference, our foulbrood question would eliminate itself in a few years. I feel this is true. The question is to teach people to know the difference between American and European foulbrood—those two chief sources of loss now.

The material which I have drawn from has been taken chiefly from Dr. White's work, also from Dr. Phillips' work, and a very, very little from the few investigations which I have carried on at the College. However, in all the work which we did, we found the ground has already been accurately covered by Dr. White, that is, in the laboratory.

Bee disease has been known to beekeepers as long as bees have been on earth practically. Aristotle, 350 B.C., wrote ten books on agricultural work, and in one of the books he took up bees, mentioning the fact that bees suffered from a malady which he did not know how to diagnose. How ignorant at that time people were in regard to bees. From that time, 350 B.C., until 1771, we find practically no mention in literature concerning bee disease. In 1771 a man named Schirach mentioned a foulbrood. About 1885, Cheshire and Cheyne of England did some work regarding foulbrood, and in that year, 1885, Cheshire presented a paper before the Royal Microscopical Society in London on foulbrood, in which he proved to the satisfaction of all at that time that Bacillus alvei was the cause of a brood disease. That was a very serious mistake, but from 1885 to the early 90's there was no one to dispute his word. You have heard this afternoon Dr. Phillips tell us how along in the early 90's certain New York beekeepers discovered that there were two brood diseases. At the time when Cheshire came forth with his paper it was supposed that there was only one brood disease among bees, and later Mr. E. R. Root, and another man, Mr. West, of New York, a bee inspector, began to doubt this fact and pointed out that there was good cause to believe there were two diseases. It was not known definitely, however, that at Cornell, and as a result of those investigations Dr. White was able there were two diseases. Dr. White then went to work with Dr. Moore to prove that there were two distinct diseases of bees.

You may wonder these American foulbroods have been called American and European. The disease which we now know as European was called such because Cheshire and Cheyne, Europeans, (Englishmen), were the first men to do work upon the disease, and the reason that the other disease was called American was because Dr. White, an American, was able to point out the cause and the treatment. The European is possibly no more common in Europe than it is in America, and vice versa.

Foulbrood is the same to bees in a way as typhoid fever, diphtheria and other germ diseases are to people, or hog cholera to hogs. It is similar, and unless you understand the methods of control and the means of spread, and the nature of germ diseases you are likely to be mystified when you attempt to treat foulbrood. Bees have what entomologists call a complete metamorphosis; in other words, when they begin life they remain in the egg stage three days, then transfer into larvae for six days, and on the tenth day are capped over and on the twenty-first day emerge as adult insects.

This foulbrood disease attacks all developing bees in the larval stage, especially European. American may attack the pupae, which is the form changed into before becoming an adult; European practically never. So both of these diseases invade the larvae in the feeding stage. Now, you understand, the developing pupa receives no food outside of the larval stage; it has all its food stored up, and the remarkable thing about the development of the bee is that in the short period of six days it can take on food enough and increase in size enough to transform into an adult bee. At the end of the six days the larva is almost half an inch long, and acquires all of this size in six days, during which period the germs of foulbrood gain entrance to the digestive system of the bee. And so, of course, foulbrood enters through the stomach, because the larva receives the germ in its food. American attacks the larvae at a later stage than the European. At the time the larvae die of American foulbrood the healthy larvae are lying stretched out in the cell. The most frequent period of death is after the cell is capped over in the four-day pre-pupa period; that is the time when the American does most of its work. At that time, the healthy larva practically occupies all of the cell lying on its back and reaches out nearly to the front of the cell with its tail in the base of the cell up against the roof. However, there is a little space on the top of the cell which the larva does not occupy. It is in this period of development that American foulbrood does its work. The period of incubation, until the larva dies, has been estimated by Dr. White as one week, for American; for European it is much shorter. At the time the larva dies it is in that stretched out position about ninety-nine times out of a hundred. After the germ has gained entrance to the larva, it performs in a certain way, and in the process of putrefaction—in American foulbrood we find the cause is only one germ. The total work of destruction is done by Bacillus larvae. In European it is different; you may find anywhere from five to six different bacteria present. In American the larva becomes affected with the germ about a week before it ordinarily dies. Remember it is usually in a capped cell. After it dies, process of decay commences, passing through five stages, as Dr. White has pointed out. Every day after that larva dies it has a slightly different appearance, which accounts for the difference in appearance you see in diseased larvae in a diseased colony. Dr. White says that at the end of the first week after the larvae dies, the characteristics of the dead larvae would be as follows,—the slightly bulged appearance you see in the healthy larvae has practically gone, and the bluish white, glistening appearance of healthy larvae has changed to a light brown color at the end of the first week. At this time the body walls of the larvae are not exactly rotten, but are soft, and the material within the larvae soft, not, however, sticky or gluey. I hope you will realize that a larva attacked with American foulbbrood is not ropy the minute it dies; you do not get this ropiness until the decay has progressed. At the end of the second week we have a still more rotten condition of the larva, and the head of the larva instead of pointing up towards the roof in the front of the cell has commenced to drop down. You might say the larva has commenced to melt down, and all the while the brownish colour has deepened. At the end of the third week the brownish colour has deepened and an odor is discenible, and along with this deepening of colour and the odor, the stickiness becomes more prominent. At the same time, at the end of three weeks after death, the trachea become rather prominent and stand out more or less. At the end of the fourth week you can see that decay has progressed well along. At this time the larva has turned to a distinct coffee color or deeper brown, but a distinct brown. The contents of the larva are ropy, as we say, there is considerable elasticity about it. At the same time there is a distinct odor present, and that odor has been called the glue-pot odor. It is a very rotten odor and very characteristic, and an experienced person can often times tell as soon as he opens a foulbrood colony that the disease is present; contrary to European foulbrood. After the end of four weeks if the cell has been uncapped by the bees we can expect the contents to begin to dry, and the head, of course, dries first, and often at the end of four weeks the heads of the larva has begn to dry down to a scale. The top of the larva commences to sink down, leaving a concave surface on the top of the larva, and after the scale has completely dried down the scale will be sticking up quite a bit on the sides of the cell. The scales are adhesive to the cell in American foulbrood; therefore the bees cannot remove them without a good deal of difficulty. I forgot to mention that in the very first stages sometimes bees will remove portions of the diseased larva.

I think there are three distinct characteristics which we can use as a means of distinguishing American from European, and would name them as these,—the coffee colour, the ropiness, and the glue-pot odor. If there are any characteristics which distinguish American foulbrood I think they are those three. One thing more, too: American sometimes attacks pupae, which, of course, means that the bees are developed far enough to have certain of the appendages outstanding, such as eyes, tongues, legs, or wings. When the pupae have been attacked by American foulbrood they often have the tongue stick to the roof of the cell. I have never seen larvae dead with European with tongue sticking to the cell.

American foulbrood may kill queen cells or drone cells, and most frequently does kill worker cells, but very rarely attacks queens or drones. I have seen several cases, however, of queen cells being attacked by American. I am not sure but what I have skipped some of the symptoms of American foulbrood, but do not recall any more now.

European foulbrood is caused by a germ known as Bacillus pluton; at least circumstantial evidence points to that conclusion. As mentioned before, there are several organisms found in larvae dying of European foulbrood, and the most common of these is Bacillus alvei. On the other hand. Bacillus alvei does not cause any foulbrood disease. Along with Bacillus pluton you will find, if you examine dead European larvae with the microscope, not only this bacillus, but probably Bacillus mesentericus, orpheus, eurydice and vulgatus, all of which, so far as we know, are nothing but putrefactive organisms. Bacillus alvei has probably most to do with putrefaction, and it is due to the action of this germ (Bacillus alvei) that we find the slight variations in the symptoms of European foulbrood. The youngest larva that dies of European foulbrood is at least four days old. That means that the larvae must receive its infection at the age of two days, because it takes two days for the larva to die after it becomes sick. At this age the larva scarcely fills the bottom of the cell. On the other hand, European may attack larvae up to the time it is capped over. It has been said before it is never found to attack pupae. As soon as they die they became a slight yellow colour, and that is one of the means of distinction, that slightly yellow colour, later changing to brownish, and decay goes on to slightly chocolate coloured. At no time are these larvae distinctly ropy, but they may stretch a slight distance, possibly an inch. They do not have that elasticity that American foulbrood larvae undoubtedly have. They have practically no odor, and the scales when formed are loose in the cells. For that reason bees can remove the scales, which is one reason why the bees can control the disease. The bees do have a chance to control European foulbrood, whereas they do not the American. Larvae a little older than this four-day period, which possibly fill the lower third of the cell, possibly larvae five days old, —they grow very rapidly at that age—while still sick, sometimes move around in the cell as if in pain, and for that reason we find them dying sometimes in a sort of corkscrew fashion. Sometimes the intestines of the larvae, which is yellow in the healthy bee due to pressure of pollen possibly, changes colour to white, and if you observe very closely you will see sort of convulsive movement in this white mass. To see these things one must get right down and look closely. That is why I said in the first of this talk that we have to observe closely; one must be a very keen observer and have good eyesight.

This older larva that I mention, as well as the young one, in process of decay change to slightly yellow, then brown, deeper brown, to chocolate coloured scales. These are loose in the cells and the position will depend upon what position the larvae dies in. The scale, being loose, can be removed by the bees.

The third group is the most interesting. They are the group stretched out in the cell when they die. The cell is possibly capped over. It is four days after being capped over before the larvae begin to change to pupae, and in that period there is plenty of time for things to happen. Larvae dying at this period, of course, go through the same process of decay as the other ones, but the scale is stretched out in the cell similar in appearance to American foulbrood. I think that some trouble comes from failing to distinguish between American and European scales in that position, because almost anyone can tell the difference between the scale curled up and one stretched out.

The scales of the European are slightly rubbery, and do not have the tendency to stick to the base of the cell as the scales of the American do. Another characteristic of the American scales is that they are quite even in thickness, while those of the European are not so regular and even in thickness. There are some exceptions to these rules. One is, American sometimes die curled up. It is very rare, but I have seen it. I am positive it was American, because I took the sample into the laboratory and diagnozed with the microscope. All the other indications of American foulbrood were present; it had the brownish colour, the ropiness, and the glue-pot odor, and if you apply those three tests I do not think there is much American that will escape you.

The danger of mistaking the European for American foulbrood is also possible. As I said, Bacillus alvei which putrefies the larva after it is dead, may change the appearance of the dying larvae. However, if European has any odor it is likely to be a sour odor. I had one case under observation where one cell only had very foul odor, and that one cell when examined had plenty of Bacillus pluton, but also Bacillus mesentericus was present in large quantity. At another time I found a sample which had a kind of hominy smell, and it had with Bacillus pluton another organism resembling Bacillus vulgatus. However, you may go by the rule that European lacks odor, rather than has any.

Now there is one other distinguishing feature which helps to diagnose European foulbrood. European foulbrood seems to have a sort of partiality for queen and drone larvae, in contrast to American. If you find lots of your queen larvae affected, I would begin to look around for European foulbrood. It is only seldom that American attacks queen or drone larvae. I think this could be used as a sort of guide, although it would not be positive. I do not think of anything else which can be used in distinguishing the difference between the diseases.

Dr. Phillips has very ably covered the importance of keeping the colonies strong, and you are probably well informed as to the ability of the Italian bees to clean the foulbrood out. I hesitate to say whether this is resistance or housekeeping ability, but they do possess something which enables them to keep foulbrood out better than other races of bees, and for that reason I think this idea of having a provincial apiary to raise queens from is very good. There are many things which queens can transmit to offspring. Experiments carried on by Mr. Chapman in our own state go to show that this is so, and so breeding from our prolific queens would be a very desirable thing to do.

Mr. Byer: In observations as far as odor is concerned, have you not found that those larvae which die from European foulbrood and reach advanced stage throw off a very strong odor?

Mr. Kelty: I think those that have reached the advanced stage have more odor than the others, and it is possible that this Bacillus alvei has something to do with that. I am not sure.

Dr. Phillips: I think I can answer that question. I said in Ontario once to some beekeepers that European foulbrood had no odor. I said the same thing in California, and they took me out and let me smell some of it. I found European foulbrood in California with an odor you can smell a block, and the difference comes in, as Mr. Kelty has just suggested, in the other organisms which are present in connection with the infection. The observations of our office have shown very clearly that the bad odor is associated with Bacillus alvei, and have also shown that the variations in colour of European foulbrood larvae is associated with Bacillus alvei, and furthermore that dying almost up to the time of pupation is due to the presence in the larvae of Bacillus alvei, which does not kill the larvae, and which actually preserves the larvae even though Bacillus pluton is present. Whenever you find the grey colour present, you may be sure that alvei is presesnt; or whenever you find an odor present you can be sure alvei is present and in older larvae which die, and it sometimes causes some confusion with the other disease.

Mr. Kelty: That idea of Bacillus alvei preserving larvae is not at all out of possibility. There is a certain wasp which lives on larvae, and that wasp will take home larvae, sting them, and the venom in that case instead of being protective is preservative, so that the larvae will remain alive and motionless until the eggs of this wasp hatch in the larvae and feed on the larvae which has been made motionless. It is possible to keep larvae in that condition for several weeks intact for the offspring of the wasp are ready to eat it..

Mr. Weir: I would like to ask Mr. Kelty if he has any conditions in his State where both American and European foulbrood are to be found in the same apiary and in the same hive, and if he has whether he depends upon close examination, that is, examination of the larvae as it appears in the comb, or whether he has found it necessary to resort to the microscope?

Mr. Kelty: No cases have come under our observation with both European and American in the same colony. I examined a sample from British Columbia and found both diseases in the same scale in abundance. I have no recollection of it being in the same colony in Michigan, but I do know of cases where our inspectors, no more perfect than any other, have made mistakes. A man in this audience can verify what I say. Told that he had American foulbrood, he immediately started to operate according to American foulbrood methods, and succeeded in cutting out 7,000 combs and melting them when E. R. Root came along and said it was European. We have had two or three other cases this year where gross diagnosis was not upheld by the microscope. There is no getting away from the microscope. You cannot help know which is which, and if you are in doubt there is always the confirmation of culturing.

Mr. Manley: I would just like to say that I am the gentleman Mr. Kelty refers to, and I can corroborate what he says about the mistakes on the part of the inspector.

A Member: What is the earliest date at which larvae sometimes die of American foulbrood?

Mr. Kelty: This one comb I mentioned contained larvae which could not have been more than four or five days old. I am positive it was American, although it was a rare case . There were some scales in the comb. The history of this case is this: This gentleman lives near the college, and two years ago the apiculture class went out to look at the apiary. Two years ago in Michigan there was practically no honey flow. When we first went out there we found plenty of scales which looked like American, and so diagnosed it. We came back a few weeks later, and found the larvae dying curled up, then later found symptoms of American again. This spring we went out again and found it dying curled up again. The three symptoms of American were present at all times, however, namely: coffee colour, glue-pot odor, and ropiness. Dr. White says that very rarely larvae die curled up in the American.

Mr. Byer: I want to say I was intensely interested in Mr. Kelty's address as well as Dr. Phillips', and I am glad he has confirmed the idea which I held. Last year the impression went out that it was almost impossible for us to be able to diagnose the difference between the two, and I am willing to admit that it is possible to confuse the two. We unfortunately have the two diseases in one hive, but I still contend it is possible for the beekeeper to tell the difference, so far as ordinary practice is concerned in the two cases. The point I wish to make is, what is the use of guessing. We want to be sure about it. We may just as well send samples away and find out. I contend that every beekeeper should be able to diagnose between the two diseases.

Mr. Holtermann: The suggestion has been thrown out that if you do not know whether it has been American or European, treat it for American and you will be on the safe side. If it is European, and you deprive those bees of brood of value you are hindering instead of helping.

REPORT OF RESOLUTIONS COMMITTEE

1. We would recommend and resolve that the December dates be adopted as dates for the next annual Convention of this Association, and that said Convention be held in Toronto.

2. Be it resolved that the Ontario Beekeepers' Association appoint and direct the Honey Crop Committee to act as extracted honey grading committee and that samples of the grades so established be left in charge of the Secretary, who shall compare samples submitted by members and inform them of the grade. The number of grades and the regulations necessary for the dissemination of this information to be made by said Committee.

3. It is moved and resolved that whereas the beekeeping world was deeply moved by the passing away of Dr. C. C. Miller of Marengo, Ill., which sad event took place on September 4th, 1920. And whereas the late Dr. Miller was a contributor in marked degree to the advancement of the beekeeping industry, and whereas his said contributions whether of literary, practical, musical or whatever nature, have been received with invariable pleasure and satisfaction, while at the same time his personal influence, whether as practising physician or as practical beekeeper, or as a citizen of the community at large, was an inspiration to good living and high ideals; be it therefore resolved that this Ontario Beekeepers' Association in Annual Convention regularly assembled (December 2nd, 1920) take this first opportunity of giving a united expression of sorrow and regret that we shall meet Dr. C. C. Miller no more in our assemblies nor feel the warm grasp of his hand in friendly greeting again on the shores of time because of the fact: "The body of this good man has been committed to the ground," "His spirit has been commended to God," "And his memory only is cherished within our breasts," and we record an expression of sympathy and condolences to the family and friends of the

late Dr. Miller who sorrow because of this visitation, and be it further resolved that this resolution be recorded in the minutes, and that a copy be sent to the home of our late friend and co-worker at Marengo, in the State of Illinois.

4. We would recommend to the consideration of the Honey Crop Committee the adoption of a standard honey pail which will be recognized as the Association pail.

5. We learn of the serious illness of an honored member of this Association, Mr. J. D. Evans, of Islington, and we would convey the sympathy of this Association with the hope of a speedy recovery to normal health.

6. We have learned of the death of Mr. John Pirie, Hornby, and we would tender the sympathy of this Association and Convention to the family of our late friend and co-worker.

M. B. HOLMES.
W. A. CHRYSLER.
JOHN MYERS.

Considerable discussion followed the reading of this report, particularly in regard to Clause 4, but the adoption of the report as a whole was ultimately carried.

RESOLUTION REGARDING OFFICIAL ORGAN

The Chairman: Regarding our official organ, "The Beekeeper." There was notification that the journal might cease publication, and the Executive passed a resolution which I would ask Mr. Millen to read.

Moved by Executive "that in view of the fact that the Association has received notification from the Horticultural Publishing Company that 'The Beekeeper' may cease publication, the Association should give members preference of the 'American Bee Journal' or 'Bee Culture,'so that members can have one or the other of the American bee journals in place of the Canadian bee journal."

Moved in amendment by Mr. Myers, seconded by Mr. Bainard: "That the Canadian Beekeeper be dropped and the American journals be taken."

Mr. Weir moved in amendment, seconded by Mr. Deadman: "That this Association continue to give support to the Canadian Beekeeper until the end of January, and that the matter be left in the hands of the Executive to decide then what is the best course to pursue." Carried.

A resolution was passed by the Executive that the Association recognize the utility of Association exhibit of honey at the forthcoming Canadian National and Royal Winter Fair, Toronto, and recommending consideration of this matter to the Association, was carried.

NECTAR PRODUCING FLORA OF ONTARIO

An illustrated lecture on "Nectar Producing Flora of Ontario," was given by Prof. J. E. Howitt, which elicited considerable discussion.

QUEEN-REARING ON DUCK ISLAND

F. W. L. SLADEN, DOMINION APIARIST, OTTAWA

REDUCTION OF LABOUR IN THE PREVENTION OF SWARMING

Various Methods.—In most years in many apiaries in the north, giving plenty of room in both brood chamber and honey storing chambers is not sufficient to prevent swarming in a large proportion of the colonies.

Finding and destroying all queen cells every week, we have found prevents swarming in over 95 per cent of the colonies, but what a labour! Besides, it interferes with the work of the bees.

Re-queening.—In studying the swarming problem, it has seemed to me that the best success is likely to come from some method of putting the colony into the condition of one that has finished swarming for the season. I know a beekeeper who produces comb-honey successfully by simply getting all his colonies to swarm before the honey flow begins. The kind of colony that has most completely satisfied its swarming impulse is not the prime swarm containing the old queen, which, under favourable conditions, will often swarm again, but it is the parent colony which has raised a young queen.

Any colony of bees can be put into the condition of the parent colony, in two operations, by removing or caging the old queen, and nine or ten days later, destroying all the queen cells, and either leaving one, or giving a ripe cell of non-swarming parentage. This method is not a new one, and not long ago I learned that one of the most extensive beekeepers in Eastern Ontario has been practising it for years, and has found it very successful.

This plan has the added advantage that it supplies a young queen for breeding up for the winter, and next year's honey crop. It has the disadvantage that it reduces honey gathering, there being a certain amount of loafing during the re-queening period. Therefore, it should only be carried out in colonies actually preparing to swarm, which will produce a reduced honey crop in any case. By treating only colonies that are going to swarm we also make use of any gain we may have achieved in breeding a strain that is disinclined to swarm.

DISCOVERING COLONIES THAT ARE ABOUT TO SWARM

There should be some quick and easy method of discovering the colonies that are preparing to swarm. This is very important. Fortunately, bees give notice that they are going to swarm, by building queen-cells. The presence of queen-cells so far advanced that they contain larvae is a pretty sure sign that a swarm will be produced, and this soon. The swarm will usually go off as soon as the first cells are capped over, or a day or two later.

We can delay the issue of the swarm by clipping the queen's wings. The swarm will then be unable to get away until the queen in the oldest cell has emerged, and is old enough to fly. This will be about eleven days after the cell was capped over.

The result is that by examining colonies every nine or ten days, we can discover practically all of those that are preparing to swarm. They will have larvae in queen cells.

To discover the presence of queen cells containing larvae, the usual procedure is to remove the supers and lift out the combs in the brood chamber one by one, examine them and then replace the supers. This is a considerable labour, and the work may be reduced by having the brood chamber in two sections. Most of the queen cells will then be built along the bottom bars of the frame in the upper section, and these can be seen at a glance by simply raising the section at the back and looking under it. This method is used to some extent in the United States. It was tried and found satisfactory at Ottawa last summer. In nearly all cases some of the most advanced cells were seen. The plan followed was to allow the queen to pass up into a shallow super placed over the regular brood containing ten Langstroth frames. The colonies were examined in this simple way at regular intervals, and were only treated when larvae in queen cells were seen on lifting the super. This plan was followed in several out-apiaries, and no swarms were produced, although several colonies requeened themselves. In cases where eggs only in queen cells were seen, the colony was usually left untreated, and the next examination showed either empty cells or larvae in cells.

Another method which has looked promising, but has not yet been fully tested, is to have a horizontal slot across one of the brood combs. The hope is that some of the queen-cells will be built in this slot so that only the frames containing the slot need be examined. It is to be noted that we do not need to see every queen cell, all we want is to be able to see one or more of the most advanced cells.

With the double brood chamber, a large apiary can be examined for active queen cells in a few minutes, provided there are no supers. With the slotted comb, it would take but little longer. But when there are one or two supers the work cannot be done so fast, and it becomes still harder as the swarming season progresses and the supers become more numerous and heavy with the ever increasing amount of honey stored. A great deal of time and exertion might then be avoided if some simple form of super hoist could be used. Various hive hoists have been designed, but they are somewhat cumbersome and have not come into general use. There is a call for something more practicable, and beekeepers with mechanical knowledge will find this problem well worth considering. As a contribution to it, the writer designed at the end of last summer, a form of wheelbarrow which clasps the lowermost super at the sides with nail points. The supers can then be raised en masse and wheeled forward. Under the supers thus raised an empty shallow super may be exchanged for a full one or a super or super clearer may be inserted, and the barrow may be used for wheeling the honey crop to the building. The barrow is to be tested further next year.

What we need is an easy way to examine the brood chamber, and there are several other ways in which this can be done, some of these without disturbing the supers at all.

We are making at Ottawa, a hive opening behind in which the combs can be removed and exchanged or reversed without disturbing the supers. The Berlepsch hive, formerly much used in Germany, is of this type, but has the combs parallel to the opening. Then there is the Barbeau bureau hive, consisting of four colonies en bloc, in which each of the sections draw out. There are several commercial apiaries of these hives around Montreal.

BEEKEEPING COSTS

JOHN A. EYRE, TORONTO

We read frequently in the newspapers that beekeeping is an easy business. An article appeared some time ago in a Toronto paper to the effect that when an individual was all broken down he could go into beekeeping and make an easy living. We know that is not right. Beekeeping is a business which requires special training and unceasing effort to carry out successfully.

We go into business to earn something, and unless the venture will return real money for the work done, it is of no use. You can readily understand that when an applicant asks another for employment, there are two questions always asked: "Can work be provided, so that wages can be earned?" and, "Has the employer the ability to pay the wages after they are earned?" No man wants to work for a bankrupt. And so, unless beekeeping, as a business, can be made to pay a satisfactory wage, it is not worth while.

Just as a mechanic, who is accustomed to a standard rate of wages, will not take less than that, so the man who goes into beekeeping should decide how much his returns should be, and plan his work so that he will not be disappointed at the end of the season. If he wants to earn $500 a year, or $1000 a year, or any other sum, then he must lay out a programme that will bring that much. If he produces only enough honey to sell for $25 he certainly cannot earn $500 from that source.

Now, to know ahead what a business will bring, we must not only estimate what our production will be, but what it is going to cost each year for expenses, because the difference between the two is the returns we will have for ourselves. These estimates are always approximate, for they have to be done in advance, but they can be made reasonably correct by taking advantage of past experience. When there is need of a doctor's advice, we go to him and tell him all the facts, and he diagnoses the case and tells us what to do. He does not wait until after it is all over and he has made a post mortem examination before he answers. In somewhat the same sense we must look ahead in our business, and arrange to take care of the difficulties and expenses as they arise. This means that we must be a master in our business and be alive to the different parts that make it up, and then run it to bring results. No one ever learned to drive a car without getting into the driver's seat and taking hold of the wheel and learning what all the levers and buttons were for.

For the purpose of this talk we will take as an example a yard of 100 colonies, set up by a man who is starting into business for himself. We will take it for granted that he has had sufficient experience to manipulate his hives and to produce a crop, and that he has enough money to purchase all the equipment necessary to take care of a good flow. He has had to provide everything from the start, though he may have been able to adapt some old material to his purpose here and there. However, nearly all he had would be new and in use for the first time. With his invoices at his hand he could fairly estimate the value of each hive. He could allow a share where anything was in general use, like his tools, extractor or honey house, and his estimate would look something like this:—

ESTIMATE VALUE OF A HIVE AT COST OF MATERIAL
ON THE BASIS OF 100 HIVES

Bottom Board, at 50c	$ 0.50
Brood Chamber, 3 supers; 4 at 70c.	2.80
40 Combs—Frames at 6c, wire at ½c, wax at 10c—16½c. Drawn at 40—at 37½c.	15.00
Inner Cover	.25
Top	.50
Queen Excluder	.85

Bees	7.00
Queen	1.50
Tools	.05
Quadruple Winter Cases, at $10.00 each—¼ is	2.50
Extractor	.25
Honey House	.75
	$31.95

These figures are a fair estimate, though they would have to be altered to meet advantageous buying on the one hand or advancing prices on the other. On this basis it means an investment of $3195.00 for an apiary of 100 colonies.

Next he would estimate his returns for a year's operation, and he would try to arrive at what he could call the margin or the spread or the earnings as the case might be. In this statement all the costs or expenses would be put into the left hand or "debit" column, and all the returns, no matter what, in the right hand or "credit" column. The costs are always entered first because they are so sure to come, there is no doubt about them, and we put the credits in last because they are so much harder to get. When we get totals to these two columns and take one from the other, we can see if there is going to be anything left for us; and if it does not look enough, we can lay our plans to reduce the cost or increase the returns so that our earnings will be greater. The following estimate is made for one hive out of the hundred in the yard, and we have left spaces for items which will not cost this man anything the first few years but may materialize later. Also remember the amounts in the "debit" column must be paid every year whether there is a honey flow or not, except the item of depreciation which, as explained later, will cease in five years. In the "credit" column, allowance is made for the lean year. All the figures are approximate and would have to be adjusted to suit any change of conditions.

ESTIMATE OF MARGIN FOR ONE HIVE IN ONE YEAR
ON THE BASIS OF 100 HIVES

Debit		Credit	
Raw material		Honey, 100 lbs. at 20c	$20.00
Labor		Bees	7.00
Queen	$ 1.50	Queens, 2 at $1.50	3.00
Maintenance		Wax (ect.)	.75
Depreciation	6.39		
Moving or cartage	1.00		$30.75
Insurance		Less for off year, 1-6	5.13
Disease	.25		
Rent			$25.62
Winter loss		Less debit	13.49
Feeding 25 lbs. at 10c	2.50		
Containers, 9 at 15c	1.35	Margin	$12.13
Travelling	.50		
Selling			
	$13.49		

Let us take each item separately and check it up to see that it is correct, starting with the " debits."

Raw Material: The bees bring the nectar in from the fields; we cannot pay anything for it, so we do not make a charge.

Labor: We will not make an entry here, as we understand that the beekeepeer will do all the work himself and will take the earnings from the season as his wages. When he hires men in the future he will use this space.

Queen: As authorities agree that we should requeen each year, we have added in here the usual cost of an untested queen.

Maintenance: This is to keep the equipment in good condition. It does not of necessity mean buying anything new, but rather, putting on a little paint or driving a nail here or there, at the start, a little later there will be something to go in here.

Depreciation: This is the most difficult of all to explain. There are two kinds, or ideas, when you think about it. The first is that the material wears out or is destroyed by an outside influence, the weather for instance, and that in the course of a few years it will be ruined, but maintenance takes care of that for a long time. The second idea is quite different, for it has in mind the money that is invested. The thought is that all the capital put into a business should be returned to the investor; that he should not lose it and never see it again. Rather, that year by year he ought to take from his returns, and charge against the business, enough money that at the end of a given period he will again have the whole sum to put into another business or to extend the first one. If this is not done, the capital is being used up to pay profits, and lots of firms go broke that way.

We are told that in a mining district like Cobalt, well managed firms "write off" the whole cost of their equipment in the first five years, and only when that is done do they pay all their earnings as dividends. In settled districts twenty to forty years is considered long enough for well constructed buildings, while furniture in the office and machinery in the shop is given a life of only three to five years. At any time an invention or improvement might scrap the whole outfit and put a firm hopelessly behind if they could not re-equip.

In this estimate, the entry is on a five year basis, the equipment cost $31.95 as the preceding table showed, and 1-5 of that is $6.39.

While this plan may seem harsh, it means that a steady growth of producing power can be maintained.

Cartage: There is always a certain amount of moving or teaming to be done, so $1.00 per hive is allowed.

Insurance: Not a usual thing, but there might be an entry here sometime.

Disease: We do not deliberately get disease, but we sometimes find it, and we have to stamp it out. That costs money, so a charge of 25c per colony is inserted.

Rent: This man planned to have his apiary on his own land; an entry would go here if rent had to be paid.

Winter Loss: Our apiarists in their bulletins show means whereby bees can be wintered safely. The beekeeper will know whether he must make a charge here or not.

Feeding: Quite necessary. The amount can be adjusted to suit local conditions.

Containers: An average charge, year by year.

Travelling Expenses: Did you ever think that it is quite fair to make your business pay the cost of travelling, periodicals, or conventions, so that you might become more proficient? It is, and further you ought to belong to your local Association and keep your dues paid up.

Selling: This item does not appear in running a small apiary, but when one gets into the business in a big way, it is different. It is noted to keep us reminded that there is such a thing to attend to when we grow up.

The total of this column is $13.49.

Now for the other side where we have entered the "credits."

We have taken if for granted here at the start that this beekeeper is able to produce 100 lbs. of saleable extracted honey nearly every year; that he will have only one lean year in every seven. We have extended the quantity at the rate of 20c per lb., which will have to be changed as the market rises or falls.

Bees: There is credit for a full stock of bees as increase.

Queens: A new queen is raised for each, the old and the new hive. You will note that the queen put into the old hive was allowed for in the other column.

Wax: As the price fluctuates, 75c is allowed.

Adding these four items we get $30.75, but we must discount this amount by sufficient to make up for the lean year when the bees barely feed themselves. That year there will be no honey, no increase and no wax, though it is possible a new queen may be raised and mated. For the purpose of the estimate a reduction of 1-6 is allowed, bringing the average gross return to a colony to $25.62 per year.

If from this total we take the amount of the other column $13.49, we have left the average net return per colony for each year, which amounts to $12.13. After the first five years have ended, the amount would be increased by the money set aside as depreciation, except that some of the other factors as maintenance would have increased.

So that on an investment of more than $3,000 our beekeeper, through his experience and industry, could approximately make about $1200, including increase as wages, taking an average of one year with another. He would also have his capital all back in five years, but if he could not produce that much honey, or had waste to contend with, or suffered from disease, his costs would perhaps increase, and when he put the total of one column against the other, he might find that instead of earning money, he had been losing it, and there is no satisfaction in working and fretting for a year, only to find at the end that there is nothing to show for it all.

In a recent number of "Gleanings in Bee Culture," Mr. Root introduced Mr. Demuth as the new editor. Mr. Root spoke of Mr. Demuth's wide experience and his skill in beekeeping, and one of the reasons why he was to be considered a good beekeeper was because he had made money from his bees. We have always looked upon Mr. Root as an authority, and do so now. We would take his word on almost any subject connected with our work. I think that he was quite right in this regard, and that one of the tests of a beekeeper is whether he can make money or not, for it is hard to think of a careless beekeeper doing well.

Some people take to beekeeping as a hobby, and they get a great deal of pleasure from it, but most of us look upon it as a line of endeavour that will bring returns. We are quite right in that, but to make it a safe and profitable business, we must plan our work and use our time and resources to the best advantage. It is not sufficient to start a season with only good intentions; for unless we know what we are going to do and what we are after, we will be bound to make false moves that will cost us a great deal. An estimate, made ahead, of cost and probable earnings will give us steadiness all the time and a goal to work for.

There is another point that we should not forget, and that is that we are entitled to the market price for our product. There is always a temptation to sell it for less. But after we have done all the work and paid the bills, so that we can offer something worth while, it is too bad to cut our own wages. No man is fair to himself or to others who takes 25c a lb. for honey when the market price is 30c a lb. He is like the man who tells his employer to give him less than was agreed on, and wants to hand back part of his wages on pay day. Whether we know it or not, there is always a relationship between the cost of production and the selling price, and knowing the costs will help us to maintain one price, so that when the accounts are all straightened out there will remain a satisfactory wage for the year's work.

WINTERING

DR. E. F. PHILLIPS, WASHINGTON, D. C.

The problem of the successful wintering of bees is one in which the Bureau of Entomology has been interested for several years. Eight years ago this fall Mr. George S. Demuth and I began work on this problem, he being at that time connected with the Bureau. He has recently left the service to become editor of "Gleanings in Bee Culture," and I am glad he is here at this time, for he must be considered as joint author of all that I shall say.

The essential thing in wintering bees is not to know the minute details of making a winter packing case for the bees wintered outdoors, or how many cubic yards of earth must be excavated in making a good bee cellar for a given number of colonies. These things are of minor importance, the essential thing being to know why certain things happen in the bee colony in winter. On facts of this kind rests the rational devising of winter equipment. In a brief time I shall attempt to discuss some of these facts.

A colony of bees is confronted in the Fall with a long period of adversity, which we call winter. There are theoretically three ways by which a bee colony might overcome or circumvent this period of adversity. The bees might hibernate, as do most of the insects which live in the adult stage through the winter in cold climates. I shall not attempt to define hibernation, but you are familiar with this phenomenon. Having previously taken into its body a certain amount of food the animal goes into a state of quiescence, is inactive and merely survives until war weather comes again. Our honey bees have lost the ability to hibernate, which their ancestors doubtless had, and there is now no hibernation in the bee colony. Another method which might be open to the bees is to go to Florida for the winter, as some Ontario beekeepers do. You smile at this suggestion, yet the nearest relatives of the honeybees do avoid a period of adversity in just such manner. The giant bees of India and the Philippines are said to migrate between the mountains and the coast, avoiding the dry seasons, just as our bees might migrate south to avoid the cold of winter. We are glad that our bees do not show this ability, because they might not find their way back to exactly the right place in the spring. They have lost the ability to migrate if they ever had it, yet they do show some manifestations of this, for in our neighbor's apiary (never in ours, of course,) they may be driven from the hives in hunger swarms, which seems simply a modification or remnant of this old habit of migrating.

If the bees have lost the ability to hibernate, and if they no longer have recourse to the migrating habit, there seems to be but one course open to them, and that is to store up a supply of food, generate heat as necessary and live through the winter in a state of activity. This is just what we find them doing. They are not quiescent, although they may be relatively quiet, and during the winter they are drawing on their supply of heat-producing food which they have stored or which we have given them, generating the heat necessary whenever the temperature drops too low for their well-being.

The intensity of the winter problem in beekeeping then depends to a large degree on the length of the period of adversity. The Ontario beekeeper knows that he has a serious winter problem, while the beekeeper in North Carolina thinks that he has no such problem, yet for some strange reason the southern beekeeper loses almost as many of his bees in winter as you do. There is a winter problem everywhere that bees are kept. It may be of interest to point out the seriousness of this problem throughout the United States. The average winter loss for the country as a whole is about 12% of all colonies. Knowing this single fact, one might surmise that the loss in New York State would be 25% and in Florida nothing at all, but the fact is that the New York beekeeper virtually loses no more of his bees in winter than does the Florida beekeeper, and the beekeepers of Oregon and Washington as a rule lose less from winter than do the beekeepers of southern California. The seriousness of the winter problem is not to be measured merely by latitude or by the intensity of cold.

From the viewpoint of the bee colony, winter may be defined as the period when there is normally no brood in the hive. It is with this period of broodlessness that we are now concerned, regardless of whether the temperature outside is 20 deg. below or 10 deg. above zero, for there is normally a broodless period wherever bees are kept, and therefore there is everywhere a winter problem. In following the course of the bee colony through this period of broodlessness we learn the factors which influence the welfare of the bees at this time, yet our winter problem is not wholly ended until the crop is harvested, because the effects of good or poor wintering do not stop with the beginning of brood-rearing. A colony which has been depleted by poor wintering may be so reduced in strength and vitality that it is unable to recover until after the main honey-flow has past.

Since bees are lost in winter in such large numbers wherever bees are kept, Mr. Demuth and I thought it worth while to begin work on this problem. In beginning this work we did not try to build a new type of winter packing case, nor were we at that time interested especially in the methods of constructing a bee cellar. We at first did nothing which might appear to the practical beekeeper as important from the practical view-point, for we felt that first of all it was necessary to find out just what bees normally do during the broodless period. In the beekeeping literature there was little information on this subject, but since this is the very foundation of successful wintering we at first devoted all of our attention to that.

Beekeepers have made thousands of observations on the activities of bees in winter, including many observations on the temperatures observed in the time that the bees are without brood. In reviewing the literature at the time we began work on this subject we found that there was far from being an agreement as to these subjects. Some beekeepers then still believed that bees hibernated in winter, while others applied the undefined term "semi-hibernation" to the condition of the bees. Perhaps the majority of beekeepers were agreed that the bees are active every minute of the winter, generating heat and at times making more or less noise, and this is what we found in our work to be the case. There was not, however, an agreement as to just what the bees were doing. There was, broadly speaking, a belief that there are two temperatures for the bee colony, the temperature of brood-rearing in summer and a lower temperature of about 70 deg. F. during the winter. We have been unable to learn just where or when this belief in a rather definite winter temperature had its origin, but in our work we found this to be quite erroneous.

The temperature of the bee cluster in winter is constantly changing in response to outside changes in temperature and in other external factors, and also in response to changes that take place within the bees themselves. In studying these changes in temperature without disturbing the bees, and thus causing abnormal environmental and temperature conditions, we found it necessary to avoid the use of mercurial thermometers, because they are too slow in their action, and especially because it is impossible to make readings on them without going to the colonies, which would probably disturb the bees more or less. Furthermore, temperatures could not be read in a bee cellar by means of mercurial thermometers at frequent intervals without constantly disturbing the bees by the introduction of light. Instead, then, of using the type of thermometers with which most of us are familiar, we adopted the thermo-couple thermometer. I shall not attempt to describe this in full, except to state that we soldered together two small wires, one of copper and the other of a copper-nickel alloy known in the trade as constantin. There are then in such a combination two places or "junctions" at which these two kinds of wire are joined together, and when soldered they form a path over which an electric current may flow. So long as the two junctions of unlike metals are at exactly the same temperature no current of electricity will pass through the wires, but as soon as one of the junctions becomes warmer than the other, an electric current is set up which continues to flow so long as a difference in temperature continues. If not we put one junction in a hive at a known point and the other junction in a thermos bottle filled with broken ice, and we have a means of measuring temperatures with great accuracy. At any place in the metalic circuit there can be placed an instrument capable of measuring the small current generated. It must not be supposed that the currents encountered in this work were comparable with the electric currents with which we are most familiar, for a difference of one degree Centigrade generates a current of only 40 millionths of a volt. However the instruments in this work were quite capable of measuring currents much smaller than this, and we were able to measure temperature differences with an accuracy of 1-20 deg. Centigrade, and to make the readings with this accuracy at the rate of about two a minute. It will readily be seen that by the use of these methods we were able to insert the thermo-couples in the fall and not to disturb the bees until the close of the experiment in the spring. After using the instruments for several years we have great confidence in their accuracy and reliability.

To indicate the need of avoiding disturbances of all kinds, it may be well to mention an experience which we had on one occasion. Mr. Demuth was on the roof of the building in which we worked preparing to place a packing case on a colony on which we planned to work, while I was in the room below taking the temperature of several colonies already in place. In doing this, he dropped the box on the roof eight feet from a colony on which I was at the moment taking temperatures. On hearing the slight noise I asked Mr. Demuth what had happened, and he suggested that I watch the temperature of the neighboring colony for a time. I found that at one point in the colony there was a rise of 20 deg. C. within 15 minutes after the box was dropped. When it is stated that this roof was solid reinforced concrete, it is clear that the actual jar experienced by the neighboring colony was not great, yet it caused the disturbance which I have mentioned.

Before taking up the temperature changes in colonies under winter conditions, it may be well briefly to review the structure of the cluster. We know that when it gets cold enough the bees gather into a nearly spherical cluster and remain there quietly until the temperature again rises. We also know that sometimes when our bee cellars get unusually cold we are able to notice more noise from the cluster than is usual. Aside from the slight shifting of the cluster as the bees use stores during the winter and the slight expansion and contraction with varying temperatures, we usually are able to see very little activity in the bees in the cluster throughout the winter. The normal position of the cluster is the place where the last brood of the fall was located. This offers a good place for the cluster, as it is always formed over and in empty cells of the comb, and further, it is usually adjacent to the honey stores on which the bees feed during the winter. In our experience the bees have always formed their cluster on the place where the last brood was found, but this may not be an invariable rule, for other conditions might make it more favorable for them to cluster elsewhere.

The next question which confronted us was to learn the structure of the cluster, and, as will be evident, it was desirable that this be done with as little disturbance to the bees as possible. We finally hit on the plan of making a hive with special glass sides, two thicknesses of glass with a small space between being used to provide better protection. A comb was placed next the glass on one side in which there were plenty of empty cells in which the bees could cluster. The next comb had only a few vacant cells near the bottom while the others in the hive were solid full of honey. On a warm day in January when bees were flying a colony was shaken into this hive and while the temperature was fairly high the bees were seen in all parts of the hive. The outer temperature soon dropped, however, and the bees began to hunt for a place to form their cluster. The only available place was against the glass on one side, and they were here so crowded that instead of forming a sphere they were compelled to form a hemisphere, the bees being crowded against the glass in a circle. Within this circle we were able to see what the bees do on the inside of the cluster. The empty cells of the comb were filled with bees with their heads inward.

As the outer temperature dropped it was seen that the circle of bees between the comb and the glass became differentiated. Those on the outer part of the circle remained in rows side by side, closely packed together with heads to the inside of the cluster, but as the temperature dropped those on the inside of the circle began to exhibit movements. The inside bees were not standing regularly in rows but were in all positions and finally were seen to be engaged in all manner of movements. Some moved their abdomens, others their antennae and finally when the temperature outside was low enough, some of them began to fan their wings. A considerable number of thermometers had previously been placed in this space next the glass, and as soon as any bee near a thermometer began to fan there was recorded a slight rise in temperature at that thermometer. The colder the outer temperature, the more bees fanned. Furthermore the colder the outer temperature, the higher the temperature within the inner circle.

One who does not wish to go to the trouble which is needed for repeating our experiment can get verification of these facts by some hasty observations on bees in winter. Go to a colony on a cool day when the bees are clustered and remove a comb from the centre of the cluster. This should be done without too much disturbance and as quickly as practicable. It will be seen that the bees on the outside ring of the cluster are arranged in rows, while those inside are irregularly placed. If we shake the comb quickly but not too hard, the bees of the inside of the cluster are removed, as they are not so firmly fastened to the comb as are the outside bees. Another shake, somewhat harder perhaps, will remove the outer rings. It will now be seen that the cells of the comb on which the cluster was formed are filled with bees with their heads in. These now begin to back out, and those in the central part of the cluster where it was warmer will be the first out. If these are now shaken off, the bees in the cells within the region of the insulating ring will back out, and these in turn may be shaken off. Observations of this kind must be made quickly and one should know in advance just what he is to look for and to do to make it a success.

If you do not wish to disturb the bees in winter, it is not hard to get confirmation as to the structure of the cluster. Next spring, in your neighbor's apiary if not in your own, you will perhaps find a colony that has died during the winter while clustered. A careful examination of the bees and of their position will show the cluster to be formed in the manner which I have described for the living bees. In the dead cluster it will be observed that the bees of the central area fall off easily while those of the insulating ring are removed with some difficulty. After these are removed the bees within the cells may readily be observed.

The proper understanding of the winter problem is not possible unless we review a point in bee physiology of the first importance at this time. We know that if during the summer a bee emerges from the cell in time to begin field work during a heavy honey-flow, the length of life of that bee is about six weeks, while if emergency occurs when there is no outside work the life of the bee is greatly prolonged. From this and many other observations it is clear that the length of life of the individual worker bee is determined by the amount of work it does and is not to be measured merely in days or weeks. It then follows that if our bees are to be able to do the heavy work of brood-rearing in the spring, we are not desirous that they spend the winter fanning their wings to keep up the temperature of the winter cluster. This then is the key to the winter problem.

The point in the practical wintering of bees that has attracted the most attention is the best method of protecting the bees, either by packing or by putting them in a cellar, so that they will not be required to generate so much heat during the period of greatest cold. In order to understand the necessity for protection and also better to appreciate the reasons for protection, it is first of all necessary to know the way in which bees respond to changes in outer temperature. This can perhaps best be explained in the short time at our disposal today by describing a single typical instance. Having previously attempted without success mathematically to calculate the relationship between the outside temperature and the temperature of the inside of the cluster, we finally decided that the best and only practicable method was to sit down by a colony and see how they behave. A series of temperature readings was begun at noon on November 13, 1912, and was continued without interruption until noon on the 15th. During the day, readings were made on the nineteen thermo-couples within the hive at intervals of one hour, because we were at the time making observations on other colonies, but during the time from 5.00 p.m. to 9.00 a.m., readings were made on these thermo-couples at intervals of fifteen minutes, all other readings being discontinued. This was the first of a number of such intensive studies, and may be used in this instance as typical, and in some ways the best. We were fortunate to have begun this series at a time when the outer temperature was beginning to drop slowly, and the drop continued without interruption until 6.00 a.m. on the 15th. At the beginning of the series the outer temperature was 69 deg. F. The weather was cloudy and the bees did not fly, so that the inner temperatures were not disturbed by activity of that type. The bees were located in all parts of the hive and were at this time as nearly inactive as bees in a normal condition ever become.

At the beginning of the series the outer temperature was slightly higher than any point within the hive. This was due to the fact that the outer temperature had risen quickly and the hive had warmed up less rapidly because of the lag due to the slowness with which the heat passed through the 7-8 inch wall of the hive. The colony was entirely unprotected, except that the entrance was reduced to 3-8 by 8 inches. Within a short time, however, as the temperature outside began to drop the temperatures of all parts of the hive were found to be slightly higher than the outer temperature, and this condition continued to the end of the series. As the outer temperature dropped slowly, the temperatures of all the points within the hive also dropped, but all points remained slightly higher in temperature than the outside. This gradual drop continued without change until 6.00 p.m. on the 14th, at which time the temperatures of the parts of the hive occupied by bees were the lowest that we had observed up to that time. The first indication of an change in the activity of the bees was manifested by a small rise in one point at one side of the place where the winter cluster was later to be formed. Fifteen minutes later there was a rise in temperature on the opposite side of the site of the future cluster, and from that time on for some time there was considerable activity in the hive, as indicated by rapid changes in hive temperature. Because of the slow drop in outside temperature, the formation of the cluster continued for several hours, and it was not until 10.00 p.m. that one could say that there was a definite cluster formation. From this time on, the bees settled down to definite cluster conditions, and the temperature of the cluster rose quickly, until at the central point the temperature was 89 deg. F., while the outside temperature was 40 deg. F. You will see that we were not dealing here with conditions of excessive cold.

The most important point in this part of the series of observations was the fact that the cluster formation began when the temperature of the bees dropped to 57 deg. F. From this and many other observations we conclude that this temperature is the critical temperature for the formation of the winter cluster. Since at temperatures higher than this the bees generated virtually no heat, and thus conserved their vital energies, it is to the advantage of the beekeeper to keep them as nearly as possible in a condition of inactivity, and to do this it is important that the critical temperature for clustering be known.

Attention should be called to the fact that after the cluster was formed the temperature was raised to 89 deg. F., in spite of the fact that at temperatures between 69 deg. and 57 deg. F., the bees had been "satisfied." If we attribute a reason to this higher temperature, it may perhaps be found in the fact that the temperature of all parts of the cluster was always at least as high as 57 deg. F., and to have this temperature in the outer part of the cluster the bees were compelled to generate so much heat in the heat generating portion of the cluster as to raise the temperature to 89 deg. F., in this particular case.

The high limit of temperature in the winter cluster may then be expected when the bees are exposed to the greatest cold. The question then comes to mind as to the high limit under adverse conditions. This limit is not to be found in the best cared-for colonies, but we do know that when exposed to intense cold the temperature may rise to 95 deg. F. There now enters an element of serious danger to the welfare of the colony, for each normal colony has within it a queen bee. This member of the colony was formerly looked on as the ruler, while we now have reason to consider her merely an egg-laying machine. When the temperature of the inside of the cluster rises to about 95 deg. F., and stays there for some time, the queen evidently "thinks that summer has come." Whether we may attribute such thoughts to her is immaterial, but in any event we find when such cluster temperatures are attained, the queen begins egg-laying, and it is also known that when winter brood-rearing is once begun that it continues. We thus have the explanation of the fact that in poorly wintered colonies brood-rearing may begin in the coldest part of the winter, and there is no winter activity that so depletes colony strength as for the bees to rear brood under such adverse conditions. Under these circumstances the bees must maintain a high temperature at all times, regardless of the outer temperature, and there is no rest for them. It might be supposed that by rearing young bees the colony would gradually be replaced by bees with great vigor because of their youth, but the cost to the colony is so excessive that this does not pay.

The key to success in wintering, however, lies in the observation on the activities of the bees as the outer temperature rose. At 6.00 a.m. on November 15 the outer temperature began to rise and as soon as this happened the temperature of the inside of the cluster began to fall. We may theoretically decide that these two temperatures would meet at about the critical temperature 57 deg. F., but in this instance the outer temperature again began to drop before the cluster was entirely broken. From this and many other observations of the same kind on this and other colonies it is clear that heat generation of normal broodless bees ceases as soon as the bees are able to stop, in short that they do no work in winter unless heat generation is necessary.

It is clear from observations of this kind that it is quite within the power of the beekeeper to reduce the work that his bees do in the winter confinement by placing them in such conditions that they are not exposed to too low temperatures. If bees were like human beings and generated heat constantly, the winter problem would be made more difficult. Bees are cold-blooded animals; they do not maintain a constant body or cluster temperature, and thus by supplying a sufficiently high hive temperature we are able to reduce the work that they do at this season of the year.

A second factor in practical wintering of great importance in some localities is the condition which we sometimes call dysentery. The Ontario beekeeper is not troubled by this so much as are beekeepers farther south. When bees are wintered on stores of poor quality the beekeeper may find that in the spring the hives are spotted with feces, and it has long been known that this condition is much worse when the stores are poor. It will pay us for a time to examine the activity of bees in this condition.

When bees have their abdomens distended with feces, they are not able to form a normal winter cluster or to stay in one position, as they do for days and hours in the insulating portion of the normal cluster. In short, the presence of feces induces activity and causes the temperature to rise which in turn causes the bees to eat more food. The more they eat, the worse the condition becomes, so that the bees are involved in a vicious circle, the end of which is death, unless they are soon able to fly and rid themselves normally of their feces. Because of the abnormal amount of activity the temperature of the cluster is soon raised to the temperature of brood-rearing and this makes matters still worse.

In all honey which bees gather there is a small amount of material which they are unable to digest. They are unable to digest starch, which is the form in which plants store their food reserves, nor can they digest gums, which is an intermediate step through which plant food passes as it is being transformed from starch into sugar. With such a highly specialized digestive system in the bees, it becomes necessary that close attention be paid by the beekeeper to the quality of the food in winter. In clover honey, for example, there is under conditions of a rapid secretion of nectar very little of this indigestible material, while in other, usually darker, honeys, there is more of it. It has long been known that honey-dew honey is poor winter food, the reason being that this contains a large per cent. of indigestible material. In our experiments we used a honey-dew honey containng 4½% of gums, but we have had samples containing as high as 12%. Even if there is but a small amount of honey-dew in the winter store of food, this may cause serious trouble if the period of confinement is long.

The beekeeper usually does not call this condition "dysentery" until the spotting of the hive is seen, but in reality all colonies of bees begin to get into this condition as soon as they are subjected to confinement. The indigestible material begins to accumulate as soon as the bees are compelled to eat food, and when they are at the same time unable to rid themselves of feces in the normal way. This accumulation soon begins to manifest itself in the behavior of the bees.

In one experiment colonies were kept in a cellar, the average temperature of which was 43 deg. F. For the first four weeks the temperature of a colony on normal honey stores averaged 66 deg. F., after which the cluster temperature gradually rose until at the close of 150 days' confinement the average cluster temperature was 88 deg. F. These bees did not have dysentery in the ordinary sense of that word, but they were unquestionably affected by the accumulation of feces. This is the reason why beekeepers so frequently see a nervousness on the part of the bees in spring before they are removed from the cellar. We found that after the bees got into this condition they were easily excited by light or by any other unusual disturbance, which would not have caused excitement earlier in the confinement.

At the same time a colony on winter stores of honey-dew honey was kept beside the colony on honey. At first this colony has about the same cluster temperature, but in a couple of weeks the cluster temperature rose quickly to 94 deg. F., brood-rearing began and the colony died of excessive activity in a few weeks. When the hive was removed it was covered with spottings of feces.

This morning in the discussion of honey-plants the question was several times raised whether honey from certain plants is safe for wintering. This is an important question, but it must be remembered that the safety of honey as a winter food depends on its chemical composition and the beekeeper cannot usually have analyses made. Luckily for the Ontario beekeeper, there is no better honey for winter use than that from white clover. It is fortunate that whenever there is any doubt in the mind of the beekeeper regarding the quality of the honey that the bees have, he can feed them some sugar syrup. There is no good excuse for the beekeeper taking long chances in this matter, for he always has it in his power to give the bees good food.

The third point in wintering to which the beekeeper must give attention is the matter of moisture in the hive. The effect of moisture in the hive is not yet fully known, but beekeepers do know from dearly bought experience that when bees are wintering well the hives are dry and that under conditions of poor wintering there is often much moisture in the hives. I have seen hives in bee cellars (not in Ontario) with considerable moisture showing at the entrances, there even being a strip of water on the bottom board several inches wide. We know that this is bad wintering. On one occasion I visited the cellar of the late Dr. C. C. Miller and found every hive entrance dry and there was no moisture even on the covers.

While we do not know the exact effect of this moisture, we can learn the source of the moisture. It does not come from condensation of moisture in the air as it comes from outside the hive, for the hive is normally warmer than the outer air. During the winter, as well as at other times, the bees use honey as their food. Honey is a food which when combusted or consumed results in the formation of carbon-dioxide and water vapor. When the bees eat honey they give off these two substances, and, roughly for each volume of honey consumed, they give off an equal volume of water. It frequently happens that during a winter the bees will consume a gallon of honey, which means that they give off water vapor which when condensed makes a gallon of water. This moisture can condense in the hive only when the hive is too cool for the best results in wintering. If the hive is as warm as it should be, this moisture passes out of the hive in the form of vapor and no moisture is to be seen in any part of the hive. The beekeeper therefore has the matter of moisture in the hive entirely under his control, and he does this merely by keeping the temperature high enough to provide conditions otherwise favorable for good wintering.

There are then these three things which demand our attention in the successful wintering of our bees: We wish to prevent too great a production of heat, too great an accumulation of feces and too much moisture in the hives. If we put around the hives insulation of such a character that the hive is kept warm, we control all of these factors to a large degree. We keep the temperature within the hive from getting too far below the critical temperature of 57 deg. F. We wish the bees to remain clustered during the winter but the temperature should not be as low as to cause them to work too hard in generating heat. If we keep the temperature up we reduce the amount of food that the bees consume and thus reduce the accumulation of feces. We at the same time reduce the amount of water vapor that they give off and keep the temperature so high that what moisture is given off does not accumulate after condensation. We cannot control the matter of the accumulation of feces entirely by keeping up the temperature, but by means of adequate protection we make even a poor food better for the bees. If the beekeeper pays attention to the quality of food and also protects the bees from low temperatures, he has done all that he can to insure success in wintering.

The exact method used in packing bees outdoors is, after all, a matter of little consequence and need not concern us today. If the beekeeper so protects the bees as to keep the temperature of the hive high he has succeeded with his packing. It makes no special difference whether you pack the colonies singly, in pairs or in groups of four, so that the hives are protected on all sides, top and bottom. The entrance should, of course, be as small as possible. It is quite natural that beekeepers should wish to have explicit directions for protecting their bees. In the first bulletins that we issued on this subject we gave the principles of wintering without giving detailed directions for the making of packing cases, and we found that not many beekeepers had improved their wintering as a result of the bulletin. We then issued a bulletin giving directions for the making of a quadruple packing case. There is really nothing recommended in this bulletin which had not previously been used for a long time, and Mr. Demuth and I wish to take to ourselves no credit for the type of packing case recommended. The fact is, we rather dislike having the quadruple packing case mentioned as the "government case." The exact type of protection is of small moment after all.

The same thing applies to the planning of the winter cellar. There are certain things in the physics of ventilation and of heat conduction which need at all times to be borne in mind in the building of the cellar, but the many things that have been argued by beekeepers regarding the bee cellar are of small consequence if the essentials are understood.

In this short discussion of the winter problem I have tried to show the necessity of a study of the principles in behavior and physics involved rather than the details of practice. When one tries to make a packing case or build a cellar in exact accordance with the practice of other beekeepers, he is apt to make serious mistakes or in some essential manner to depart from the necessary things unless he knows the principles involved. This necessity of a knowledge of principles is true throughout beekeeping, but nowhere is it more true than in wintering.

REPORT OF LIGHT HONEY CROP COMMITTEE

The Crop Report Committee of the Ontario Beekeepers' Association met in Toronto, Saturday, July 31st. This date proved to be too early for the past season, as quite an addition to the crop was harvested after that date.

Many beekeepers suggested a price of 30 to 35 cents as everything else was very high in price at that time, especially sugar, which was selling at 25 cents, or thereabouts. Since that time conditions have changed—sugar came down over half—a big fruit crop and the importation of New Zealand honey—all these things could not be foreseen by your committee. However, the prices set have been realized by a great many of the beekeepers and did benefit them.

Those who have not sold may possibly have to take a lower price, especially in districts where a good crop was obtained.

The importation of New Zealand honey seems to us to have been a mistake both from the viewpoint of beekeeper and dealer, because much of it was not of good grade, and is apt to spoil the demand for honey by consumers buying it in good faith for Ontario honey.

Reports were received from 470 members, together with reports from Quebec and various States. With a few exceptions the crop reported is fair and in some localities light honey is still yielding. Owing to the extreme winter loss of 1919-1920 there was only half the normal number of colonies to harvest the crop.

Members are urged either to save an abundance of honey for wintering, or secure sugar. Sugar is available, and may not be cheaper before the bees should be prepared for winter.

The Committee recommends the following Prices, and should any conditions arise which will materially alter the market, members will receive due notice. All prices F.O.B. shipping point:

Best Quality Light Extracted, wholesale	27c to 32c per lb.
Best Quality Light Extracted, retail (to consumer)	32c to 40c per lb.
No. 1 Comb, wholesale	$3.75 to $4.75 per dozen
No. 2 Comb, wholesale	2.75 to 3.75 per dozen

The minimum price is recommended for barrels or whole crop, the maximum price for part crop or 2½, 5 and 10 lb. tins. Honey in glass packages should be somewhat higher to allow for increased cost of package and bottling.

Members are cautioned not to sell poor grade honey for table purposes, but to sell off-grades to biscuit manufacturers.

Owing to the wet season members are cautioned not to extract honey unless thoroughly ripened or it may ferment soon after extracting.

Signed by the Committee.

W. W. Webster,
President.

H. G. Sibbald
W. J. Craig
Wm. Couse

F. Eric Millen,
Secretary-Treasurer

REPORT OF THE PROVINCIAL APIARIST

F. ERIC MILLEN, O.A.C., GUELPH

The unseasonable weather made inspection work very unsatisfactory until July, whereas in normal seasons June is an ideal month for apiary inspection.

The Department has found the same difficulty this past season, as in other years, of being able to secure sufficient reliable men to act as apiary inspectors.

Apiary inspection work, to be entirely satisfactory and to yield results, must be conducted by experienced beekeepers, who possess a great deal of tact and yet firmness in seeing that the diseased colonies are treated at the right time and in the right way. The Department would like to secure more men who have these qualifications.

During the past season the inspectors were sent out in pairs and in this way it was possible to cover the ground more quickly and also enabled some of the inspectors to gain valuable experience.

In the past, few second calls have been possible, but this past season an effort was made to re-visit those apiaries where disease was found on the first inspection.

Many beekeepers, with a few colonies, have not sufficient knowledge of the habits of the honey bee and American foulbrood to be able to treat the colonies thoroughly. In many cases, where these beekeepers have omitted some important part of the treatment or have allowed robbing to take place, or reinfection from diseased material, and the result has been that American foulbrood has been spread and increased rather than controlled.

Until the County Associations themselves take more interest in the control of American foulbrood and aid those beekeepers with less experience, where American foulbrood is present, it is almost impossible for the Department to control, let alone eradicate, American foulbrood.

Lambton County Beekeepers' Association is going to make an earnest effort to rid the County of American foulbrood next season, and to this end they are raising a fund so that they can be sure of having an inspector in the County all season. This fund, together with the aid of the Department, should help materially. The money raised by the Lambton County Beekeepers' Association is entirely secondary to the interest they are arousing among the beekeepers themselves. Where a County Beekeepers' Association develops a real intrest in American foulbrood, and will co-operate with the Department and the beekeepers of the County, then there will be some hope of decreasing American foulbrood.

The co-operation to eradicate American foulbrood should be a prominent plank in the platform of all County Beekeepers' Associations.

The Provincial Government gave $2,000 extra grant for apiary inspection. The grant is now $7,000, with the Federal grant for promotion of beekeeping interests of $1000, a total grant of $8,000.

Ontario Department of Agriculture

ANNUAL REPORTS

OF THE

DAIRYMEN'S ASSOCIATIONS

OF THE

PROVINCE OF ONTARIO

1920

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Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of Your Honour the Report of the Dairymen's Association of Eastern Ontario for 1920, and the Report of the Dairymen's Association of Western Ontario for 1920.

Respectfully submitted,

MANNING W. DOHERTY.

Minister of Agriculture.

Toronto, 1921.

TO THE HONOURABLE MANNING W. DOHERTY,

Minister of Agriculture.

Since the proceedings of the Dairymen's Associations, and the activities of the instruction staff of the Provincial Department of Agriculture, during 1920, were given extensive publicity early in 1921, it was decided not to issue a full report as usual; and we are presenting herewith only brief statements and a few general comments regarding the 1920 dairy situation.

G. A. PUTNAM,

Director of Dairying.

THE DAIRYMEN'S ASSOCIATIONS OF EASTERN AND WESTERN ONTARIO.

The 44th Annual Convention of the Dairymen's Association of Eastern Ontario, was held at Cobourg on January 6th and 7th, 1921, and the 54th Annual Convention of the Dairymen's Association of Western Ontario in the Masonic Hall, London, January 12th and 13th, 1921.

Since considerable publicity was given to the proceedings of both these conventions through the daily and agricultural press, we are presenting, herewith, only brief quotations from the addresses of the Presidents, and the reports of the Directors and of the Chief Dairy Instructors, together with list of officers and financial statements.

The President, Mr. George Smyth, of Iroquois, expressed satisfaction with the high quality of Eastern Ontario cheese, in 1920, due largely to the splendid system of instruction provided by the Provincial Department of Agriculture.

Regret was expressed that the manufacture and importation of "oleo" were still allowed to the detriment of the butter industry.

The chief dairy instructor, Mr. G. G. Publow, Kingston, presented a report on the work of the eighteen instructors and sanitary inspectors who visited regularly the 742 cheese factories which operated throughout the season. Mr. Publow reported a very marked improvement in the sanitary conditions of the factories. Two factories were asked to cease operations until the necessary improvements were made. Six new factories were built during the year; 368 factories made improvements to the value of $139,000. Whey butter to the value of $323,210 was manufactured during the season, in addition. Two hundred and fifty-nine factories skimmed the whey and shipped cream to the value of $309,185; 26,249 patrons furnished milk from 241,831 cows to cheese factories, a decrease of 5,580 cows as compared to the year before; 73,900,852 pounds of cheese were manufactured in the six months, May to October, a decrease of nearly 6,000,000 pounds as compared to the preceding year. The average selling price of cheese was 26½ cents per pound, as compared with 27 cents in 1919. A large number of new silos were built and a number of milking machines were introduced. In addition to the 742 cheese factories in Eastern Ontario, 22 were operated in the newer Northern sections.

Mr. Publow made an appeal for an improved system for marketing our dairy products, especially cheese, and urged that the raw material as well as the finished product be paid for on a quality basis.

Mr. G. A. Putnam, Director of Dairying, emphasized the relative importance of dairying in our agricultural activities. He referred to the fact that the cheese industry has been for a great many years, and still is, the barometer for Canadian dairying. He urged the dairymen to adopt the combination of poultry raising, bacon production, and milk production. Mr. Putnam expressed every confidence in the future of this very important industry, and appealed for greater attention to the matter of *quality*.

Mr. L. A. Zufelt, Kingston, Superintendent of Eastern Dairy School, and Instructor of Creameries of Eastern Ontario, reported a rapid development in the butter industry of Eastern Ontario. Forty-seven creameries produced about seven and a quarter million pounds of butter, valued at four and a quarter million dollars. The general quality of the butter compares favourably with the output of the whole province, whilst the output of the better equipped creameries is not inferior to that made in any part of the Dominion.

President W. G. Medd, reported superior quality in the year's output of cheese for Western Ontario, while the quantity is declining. He appealed for greater support for the cheese industry in order that a proper balance between the various lines of production might be maintained. Mr. Medd urged that the creameries take advantage of the butter grading service with a view to securing a uniform high grade of output. He appealed for the grading of cream through the co-operation of producers and manufacturers.

The directors reported favourable climatic conditions for the year with the result that the quality of the cheese was of high grade.

A number of Western Ontario powder and condensing plants ceased manufacture or curtailed output on account of the very poor demand. Some of this surplus milk was turned into cheese and butter-making channels.

John H. Scott reported an increase of nearly 100 per cent. in the amount of butter graded. Sixty-nine creameries sent samples in quite regularly. About 87 per cent. of the butter graded was from pasteurized cream. The Storch test was used in determining the efficiency of pasteurization. Real progress in the matter of pasteurization was reported during 1920, the increase in quantity pasteurized being about 200 per cent.

Mr. F. Herns, chief dairy instructor for Western Ontario, London, reported that the 129 cheese factories produced high quality goods, partly due to the favourable weather conditions. Some difficulties were encountered, but were dealt with as quickly as possible, with the result that very few defective cheese were produced. The average percentage of fat during the season was 3.3 per cent., .03 per cent less than in 1919. Two new factories were built and six factories closed in Western Ontario during the year. The great majority of factories skimmed the whey, but only nineteen made butter from the whey, the others shipping cream. An increase in the number of creameries using neutralizers was reported, and a few plants are adding mechanical refrigeration each year. Ten new creameries were built at a cost of $139,000. Two hundred and sixty-five thousand dollars was the estimated expenditure in general improvements.

For the first time an instructor was engaged to visit cream buying stations, and other buying places. He visited 247 buying stations, and gave the operators special instruction in cream testing, care of cream, sanitary arrangements, etc. Valuable assistance was rendered by the Chemical and Bacteriological Departments of the Agricultural College, which added materially to the effectiveness of the service rendered.

DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO.

OFFICERS FOR 1921.

Honorary President—John R. Dargavel, Elgin.
President—Geo. Smyth, Iroquois.
First Vice-President—M. N. Empey, Napanee.
Second Vice-President—R. W. Ireland, Wellington.
Secretary—T. A. Thompson, Almonte
Treasurer—Jas. R. Anderson, Mountain View.
Auditors—J. J. Payne, Brinston, and Morden Bird, Stirling.
Representative to the Toronto Fair Board—Richard Honey, Dartford.
Representative to the Ottawa Fair Board—A. J. Robertson, Martintown.
Representative to the National Dairy Council—Geo. Smyth and J. A. Sanderson.

Directors for 1921.

1. Carleton	W. G. Godkin, Carsonby.
2. Dundas	Geo. Smyth, Iroquois.
3. Frontenac	E. Campsel, Hartington.
4. Grenville	J. A. Sanderson, Oxford Station.
5. Glengarry	A. J. Robertson, Martintown.
6. Hastings	F. G. Knight, Belleville.
7. North Hastings	S. S. McComb, Belleview.
8. Lanark	John Steele, Almonte.
9. Leeds	R. G. Leggett, Newboro.
10. Lennox and Addington	M. N. Empey, Napanee.
11. Northumberland	Rich. Honey, R.R. 1, Dartford.
12. Peterboro	G. A. Gillespie, Peterboro.
13. Prescott	A. Carriere, Curran.
14. Prince Edward	R. W. Ireland, Wellington.
15. Renfrew	John G. Gibbons, Renfrew.
16. Russell	W. H. Olmstead, Bearbrook.
17. Stormont	O. E. Wert, Avonmore.
18. Victoria	W. J. Newman, Lorneville.

FINANCIAL STATEMENT FOR 1920.

Receipts.

Jan. 4—Cash on hand from previous year	$121 34	
For members' fees	196 90	
Legislative grant	2,500 00	
Receipts from programme advts.	320 00	
Receipts from prosecutions	1,018 30	
Receipts from Dairy Exhibits	7,256 95	
Donations for special prizes	25 00	
Interest at Molsons Bank	3 82	

Expenditures.

Brockville pay sheets for directors		443 35
Toronto pay sheet, No. 2, Executive		188 30
Prosecutors' salary and expenses		678 92
Lecturers' expenses		411 80
Advertising and printing		623 35
Rural Publishing Co., subscribers to *Farm and Dairy*		196 70
District Meeting, expenses		224 39
Stationery, postage, telephone and express		90 55
Officers' salaries		600 00
Official stenographer		90 00
Expenses *re* Dairy Exhibit		8,638 21
Owing to The Molsons Bank	$743 57	
	$12,185 57	$12,185 57

DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO.

OFFICERS FOR 1921.

President—J. Scott, Woodstock.
First Vice-President—J. N. Allen, Dunnville.
Second Vice-President—R. Johnston, Bright.
Third Vice-President—H.. Mannell, Woodstock.

Directors.

T. Ballantyne, Stratford.
Frank Thompson, Bennington.
G. M. Cary, Petrolia.
James Newbigging, Atwood.
Garnet Bain, Lakeside.
Fred Keyes, Elmira.

Auditors.

J. C. Hegler, Ingersoll.
J. A. Nelles, London, Ontario.

Representatives.

Canadian National Exhibition, Toronto—F. Herns, London, Ontario.
Western Fair, London, Ontario—F. Herns, London, Ontario.
C. J. Donnelly, London, Ontario.

FINANCIAL STATEMENT FOR 1920.

RECEIPTS.

Cash on hand from previous year	$85 78	
Members' fees	276 00	
Legislative grant	2,000 00	
Money received from prosecutions	371 00	
Donations for special prizes	50 00	
Sale of dairy exhibits, butter	1,279 20	
Sale of dairy exhibits, cheese	1,611 87	
Advertising in Convention programme	258 00	
		$5,931 85

EXPENDITURES.

Cash paid for prizes	$526 00	
Expenses for convention	152 50	
Stenographer's salary	571 50	
Directors' expenses	149 50	
Stationery, postage, telephone and telegrams	183 03	
Printing, $258.36; advertising, $111.28	369 64	
Judges' fees and expenses	58 70	
Prosecutors' salary and expenses	185 50	
Periodicals for members	197 40	
Cost of reporting	60 00	
Purchase of Dairy Exhibits	2,888 35	
Office expenses, light, cleaning, sundries	113 84	
Office rent	171 00	
Express and cold storage	30 28	
Half fines paid to factories	185 50	
Auditors' fees	15 00	
Interest on bank deposits	3 75	
		$5,861 49
Balance		70 36
		$5,931 85

Ontario Department of Agriculture

ANNUAL REPORT

OF THE

LIVE STOCK BRANCH

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by C. W. JAMES, Printer to the King's Most Excellent Majesty
1921

To His Honour Lionel H. Clarke,

Lieutenant-Governor of the Province of Ontario.

May It Please Your Honour:

I have the honour to present herewith for your consideration, the Report of the Live Stock Branch of the Department of Agriculture for 1920.

Respectfully submitted,

Manning W. Doherty,

Minister of Agriculture.

Toronto, 1921.

Annual Report of the Live Stock Branch
1920

To The Honourable Manning W. Doherty,

Minister of Agriculture.

Sir,—I hereby transmit the Annual Report of the Live Stock Branch for the year 1920. It contains the financial statement of the Ontario Provincial Winter Fair for the year 1920; report of Ontario Stallion Enrolment Board; report of co-operative shipments of pure-bred live stock; financial statements and lists of officers of the Live Stock Associations and addresses delivered at annual meetings of the Live Stock Associations.

Faithfully yours.

R. W. Wade,

Director.

Ontario Provincial Winter Fair

Following are a number of comparative tables of attendance, gate receipts, and entries for a series of years; also the regular annual statement of receipts and expenditures for the year ending January 31st, 1921:—

ATTENDANCE

	1913	1914	1915	1916	1917	1918	1919	1920
Friday	......	......	1,195	4,287	1,794	790	2,932	402
Saturday	......	2,550	3,214					2,410
Monday	......	5,827	7,063	7,985	5,330	3,410	5,488	4,890
Tuesday	8,210	11,723	11,629	8,228	8,994	3,115	8,254	7,425
Wednesday	15,327	12,128	12,612	12,470	13,812	3,985	10,789	10,041
Thursday	13,180	5,050	6,915	8,711	8,022	1,329	5,686	4,877
Friday	4,266	......	......	......	......	......	......	......
Total	40,983	37,278	42,628	41,681	37,952	12,629	33,149	30,045
Gate Receipts	$4,622	$4,219	$4,363	$4,504	$4,959	$2,770	$4,380	$7,984

COMPARATIVE STATEMENT OF ENTRIES, 1913-1920

	1913	1914	1915	1916	1917	1918	1919	1920
HORSES:								
Clydesdale	202	144	171	140	158	211	198	178
Shire	10	6	7	8	5	9	3	2
Percheron	48	35	28	27	32	42	39	23
Belgian	......	......	......	......	......	......	5	5
Hackney	27	27	44	22	35	36	21	16
Standard-Bred	11	14	33	28	36	24	18	8
Thoroughbred	17	16	12	31	22	18	12	8
Pony	13	14	30	12	20	15	9	12
Heavy Draft	45	31	51	34	24	43	37	48
	373	287	376	302	332	398	342	300
BEEF CATTLE:								
Shorthorn	47	44	62	82	74	107	107	104
Hereford	13	13	27	19	43	70	40	72
Aberdeen-Angus	11	6	19	27	27	38	55	37
Galloway	4	8	10	......	......	......	......	......
Grade or Cross	58	83	83	67	31	40	56	69
Amateur Class	21	40	57	......	......	......	......	......
Export Steers	6	9	......	......	......	......	......	......
Inter County Baby Beef	......	......	......	......	3	5	12	11
Finished Cattle	......	......	......	......	......	......	......	19
	160	203	258	195	178	260	270	312
DAIRY CATTLE:								
Shorthorn	6	4	6	4	5	7	7	3
Ayrshire	16	17	53	41	36	43	49	27
Holstein	34	27	72	34	39	51	65	31
Jersey	14	13	4	24	19	25	9	13
Grade	9	11	11	11	6	8	4	......
	79	72	146	114	105	134	134	74

COMPARATIVE STATEMENT OF ENTRIES—*Continued.*

	1913	1914	1915	1916	1917	1918	1919	1920
SHEEP:								
Cotswold	37	52	62	65	56	68	56	41
Lincoln	21	44	36	25	45	18	31	45
Leicesters	37	38	33	31	35	67	48	40
Oxford-Down	35	52	56	25	59	97	66	36
Shropshire	40	55	61	51	81	66	65	62
Southdown	52	63	50	51	56	81	73	56
Dorset Horn	16	18	26	42	21	45	43	28
Hampshire and Suffolk	18	19	35	28	34	64	56	54
Market Wethers	....	....	....	....	....	....	....	96
Grade or Cross	65	90	63	71	70	82	98	78
	321	431	422	389	457	588	536	536
SHEEP CARCASSES:								
Cotswold	9	14	14	7	7	8	4	3
Lincoln	5	11	6	4	3	4	1	7
Leicesters	7	6	7	3	4	4	6	5
Oxford-Down	9	12	11	4	6	10	3	5
Shropshire	8	14	13	7	8	7	5	8
Southdown	11	16	9	3	3	9	5	5
Dorset Horn	6	9	6	5	6	7	6	3
Hampshire and Suffolk	2	4	5	4	6	7	7	7
Grade or Cross	25	43	11	42	38	40	56	53
	82	129	82	79	81	96	93	96
WOOL:	....	....	....	27	21	29	49	40
SWINE:								
Yorkshire	62	62	72	60	57	66	74	84
Berkshire	67	36	60	48	80	85	90	65
Tamworth	22	22	36	24	41	32	28	41
Chester White	26	23	40	30	37	30	33	27
Any Other Breed	18	8	34	45	15	44	24	47
Grade or Cross	39	31	48	....	....	....	....	....
Bacon, Hogs, Pure Breed	16	19	40	24	23	33	43	21
Bacon Hogs, Grade	14	17	....	....	....	....	....	....
Carcasses, Pure Breed	12	19	34	24	17	33	38	20
Carcasses, Grade	14	13	....	....	....	....	....	....
Butcher Hogs	....	....	23	15	11	12	10	16
Carcasses, Butcher Hogs	....	....	22	14	11	12	10	14
Farmers' Sons, Special	....	....	6	2	7	4	6	2
	290	250	415	286	299	351	356	337
SEED	269	337	331	374	252	394	350	291
POULTRY:								
Fowls	3,416	3,311	4,198	4,092	4,518	4,651	4,976	3,845
Turkeys and Water Fowl	385	378	346	396	462	455	449	367
Pigeons	255	474	558	663	872	913	923	547
Pet Stock	17	28	46	18	25	89	49	40
Utility Pen	11	13	20	31	59	69	78	65
Selling Class	274	147	229	82	....	....	....	....
Dressed Poultry	250	228	185	208	166	136	179	186
Laying Pens	....	....	....	....	11	10	12	8
	4,608	4,579	5,582	5,490	6,113	6,323	6,666	5,058
JUDGING COMPETITION:								
Regular	309	250	195	124	145	140	60	198
Inter-County Teams	....	....	54	63	60	63	30	69
	309	250	249	187	205	203	90	267

72 HOUR DAIRY TEST, ONTARIO PROVINCIAL WINTER FAIR, GUELPH, 1920

Cat. No.	Prize.	Name and age of Animal	Lbs. Milk	Fat.			Solids, not Fat		Lbs. S. N. F.	Points for S.N.F.	No. Days Milking	Points	Total Points
				%	Lbs.	Points	L. R.	%					
		Shorthorn, 48 mos. and over											
623	2nd	Lily of the Valley	131.5	3.63	4.7857	119.64	33.0	9.0	11.85	35.55			155.19
		Ayrshire, 48 mos. and over											
627	1st	Pearl of Balquido	197.3	4.28	8.4503	211.26	32.6	9.20	18.17	54.51			265.77
624	2nd	Brookside Lady	161.6	5.02	8.1104	202.76	31.8	9.133	14.86	44.58			247.34
628	3rd	Acmelea Grace	168.3	4.19	7.0541	176.35	33.4	9.40	15.83	47.49			223.84
625	4th	Freetrader's Sarah 2nd	151.4	4.29	6.5015	162.54	32.9	9.29	14.07	42.21			204.75
		Ayrshire, 36 mos. and under 48											
630	1st	Freetrader's Jean Armour	149.1	4.1	6.1373	153.43	33.5	9.39	14.01	42.03			195.46
631	2nd	Daisy Queen of Orkney 3rd	127.7	4.50	5.7581	143.95	33.1	9.38	11.99	35.97			179.92
634	3rd	Olive of Craigielea	137.1	3.79	5.2046	130.12	34.3	9.52	13.05	39.15			169.27
629	4th	Freetrader's Sarah 4th	144.0	3.3	4.8421	121.05	32.9	9.06	13.05	39.15	7	7	160.90
633	5th	Sunnybrook Sunbeam	115.6	3.76	4.3517	108.77	33.8	9.35	10.82	32.46	8	8	142.05
		Ayrshire, under 36 mos.											
638	1st	Edna of Craigielea	142.8	3.51	5.0234	125.585	33.2	9.17	13.10	39.3	23	2.3	167.19
635	2nd	Trixie G. 2nd	112.3	3.81	4.2815	127.04	33.2	9.20	10.34	31.02	9	.9	158.96
639	3rd	Jesse of Craigielea	119.9	3.74	4.4881	112.202	33.3	9.24	11.09	33.27			145.472
636	4th	Acmelea Corina	118.0	3.18	3.7507	93.7675	35.3	9.38	11.07	33.21	83	8.3	135.277
		Holsteins, 48 mos. and over											
657	1st	Marion De Kol 2nd	267.4	3.28	8.7918	219.79	33.2	9.11	24.37	73.11			292.90
655	2nd	Daisy Segis Pietertje	278.3	2.7	7.4289	185.72	30.2	8.21	22.86	68.58	14	1.4	255.70
		Holsteins, 48 mos. and over											
653	3rd	Cornish Lodge Margaret Mercedes	235.9	3.17	7.4918	187.37	32.8	8.98	21.20	63.6	18	1.8	252.77
656	4th	Model's Perfection	169.2	3.99	6.7593	169.0	31.2	8.81	14.91	44.73			213.73
658	5th	Minnie Vale Calamity	173.3	3.19	5.5454	138.63	32.4	8.89	15.39	46.17			184.80
		Holstein, 36 mos, and under 48											
663	1st	Pioneer Snowstorm Hartog	259.9	3.37	8.7804	219.51	30.9	8.55	22.24	66.72	11	1.1	287.33
662	2nd	Ladoga Idaline Mercena	189.5	3.23	5.8638	146.60	32.7	9.0237	17.10	51.30			197.90

		Holstein, 24 mos. and under 36										
664	1st	Mercena Pontiac Sylvia	167.1	3.92	6.5661	164.15	31.6	8.874	14.83	44.49	14	1.4	210.04
666	2nd	Pontiac Atlas Francy	187.2	3.32	6.2229	155.572	31.2	8.65	16.21	48.63	15	1.5	205.72
667	3rd	Madam Vale Abbekerk	129.3	4.57	5.9135	147.83	30.2	8.65	11.19	33.57	6	.6	181.00
665	4th	Valdessa Mercena Fayne	161.7	3.23	5.2375	130.94	32.2	8.85	14.32	42.96	....	....	173.90
		Jersey, 48 mos. and over										
683	2nd	Edgeley Fairy Lass	125.4	4.66	5.8486	146.22	34.7	9.840	12.34	37.02	14	1.4	184.63
		Jersey, 36 mos. and under 48										
684	1st	Hawthorn Beauty	140.0	4.64	6.5026	162.56	33.9	9.642	13.50	40.50	20	2.0	203.06
		Jersey, under 36 mos.										
686	1st	Edgeley Patricia	117.0	3.79	4.4334	110.83	34.7	9.641	11.28	33.84	....	....	144.67

FINANCIAL STATEMENT

Of the Ontario Provincial Winter Fair, for the year ending January 31st, 1921.

Receipts.

Legislative grant		$17,000 00
Special Legislative Grant		4,000 00
Federal grant		5,000 00
Grants		
Horse Breeders' Association		50 00
Canadian Shire Association	$50 00	
Cattle Breeders' Association		1,260 00
Canadian Jersey Association	60 00	
Canadian Ayrshire Breeders' Association	300 00	
Dominion Shorthorn Breeders' Association	600 00	
Canadian Hereford Breeders' Association	300 00	
Canadian Ayrshire Breeders' Association, special prizes, dairy judging competition, 1919		100 00
Canadian Aberdeen-Angus Association, balance grant, 1919		30 00
Concessions at Fair		183 08
Gate Receipts		7,983 75
Entry Fees		7,153 19
Horses	$618 30	
Horse stalls	243 00	
Cattle	870 61	
Sheep	421 17	
Swine	328 94	
Wool	30 15	
Judging	166 45	
Seeds	208 90	
Poultry	3.777 67	
Poultry memberships	488 00	
Advertising in premium list and catalogue		2,095 60
Dominion Government Specials		1,556 00
Proceeds of catalogues		216 20
Proceeds of sheep and hog carcasses		4,099 04
Proceeds of milk		236 99
Proceeds of seeds		536 28
Proceeds of dressed poultry		1,401 42
Rental of coops		32 25
Subvention to seeds, 1919 and 1920		751 34
Ontario Duroc Jersey Association, special prizes		25 00
Sale of Coal		67 50
Advertising O.P.W.F. Review		100 00
Express on seeds, 1919		42 02
Advertising, catalogue 1919		120 00
Entry Fees, 1919		64 16
Uncashed cheques		83 93
Dairy Feed		26 30
Proceeds of bags		23 50
Miscellaneous		5 65
Total		$54.243 20

Expenditures.

Balance due Treasurer as per last report		$4,204 72
Special prizes, dairy judging competition, Guelph, 1919		55 00
Special prizes, dairy judging competition, Ottawa, 1919		45 00
Auctioneer seeds, 1919		15 00
Prize money, 1919		37 00
Prize Money		23.610 30
Horses	$4.757 00	
Beef cattle	4.041 00	
Dairy cattle	1,667 40	

Sheep	3,441 00	
Swine	2,225 00	
Poultry	4,641 15	
Dressed Poultry	785 75	
Seeds	1,177 00	
Judging	465 00	
Bright special	25 00	
Dominion Shorthorn specials	100 00	
Holstein-Friesian specials	250 00	
Duroc Jersey specials	25 00	
Keith special	10 00	
Poultry Judges		$903 75
Live Stock Judges		756 00
Seed Judges		60 00
Poultry clerks		146 30
Live stock clerks		190 30
Sale of milk, 1919		108 19
Printing		2,619 37
Advertising		2,129 35
Office help		805 95
General help		706 95
Seed room help		147 00
Managing arena		335 00
Live stock help		990 51
Poultry help		1,246 30
Auditor		15 00
Taxes		13 91
Fitting building		643 91
Office supplies		85 64
Ribbons and badges		727 70
Protested cheque		32 84
Bags, seed department		56 56
Decorating arena		82 38
Ensilage		61 12
Poultry feed		245 26
Tanbark, $101.80; shavings, $372.00; straw, $391.18		864 98
Heat and light		1,441 86
Insurance		142 30
Interest charged		51 50
Express		56 16
Telephone		61 89
Telegrams		9 17
Exchange		11 50
Orchestra		157 00
Block test		177 60
Dairy test		296 26
Engraving Shields		8 95
Membership fees, Ontario Poultry Association		488 00
Membership fees, Ontario Seed Growers' Association, 1919 and 1920		189 00
Rebate Freight		58 33
Sale of seeds, 1919		8 75
Sale of sheep and hog carcasses		4,099 04
Sale of dressed poultry		1,989 28
Sale of seeds		644 78
Sale of milk		174 93
Refund stall fees		9 00
Refund entry fees		105 00
Subscriptions to Journals		7 00
Directors' expenses		1,304 01
Miscellaneous		45 75
Cash on hand		764 85
		$54,243 20

(Sgd.) John Gardhouse,
President.

(Sgd.) J. E. Rettie,
Treasurer

Stallion Enrolment

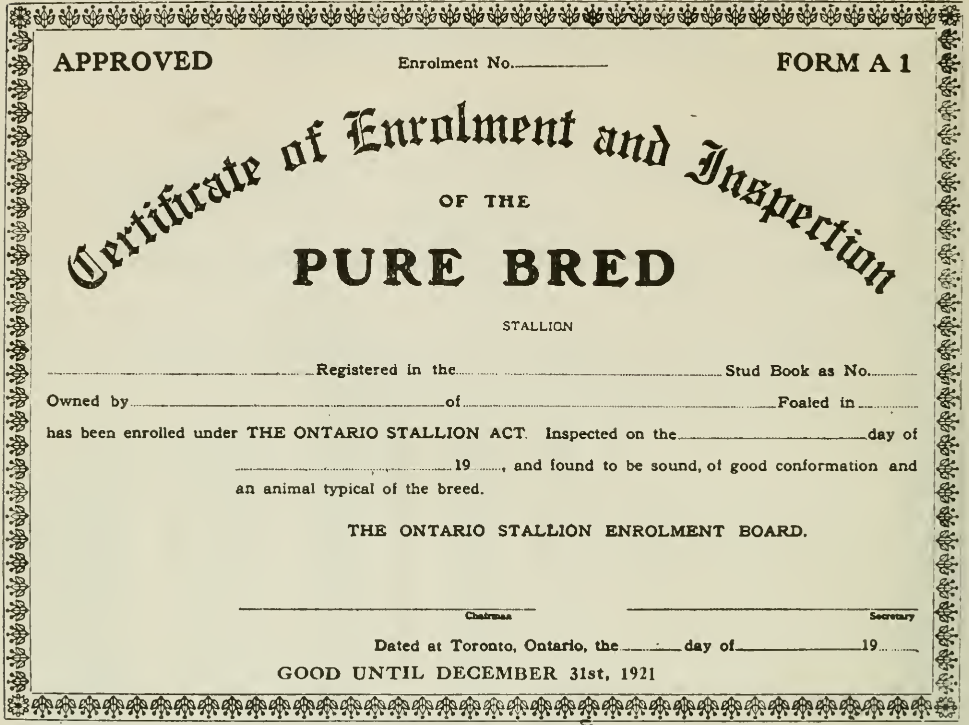
SUMMARY FOR THE PROVINCE OF ONTARIO SHOWING BY COUNTIES THE NUMBER OF THE DIFFERENT BREEDS OF STALLIONS ENROLLED DURING 1920.

County.	Clydesdales.	Percherons.	Shire.	Belgian Draft.	French Can.	Suffolk.	Standard Bred.	Thoroughbred.	Hackney.	French Coach.	German Coach.	Ponies, Morgans and Hunter.	Total Horses Enrolled.
Brant	5	7		3		1	1						17
Bruce	52	10	1	2	2		8					1	76
Carleton	24	4		2	1		8	1	2				42
Dufferin	34	1					6		1				42
Dundas	5	5					3		1				14
Durham	22	2	1		1	1	4		2		1		34
Elgin	8	7	4			1	2				1		23
Essex	9	16	1	2			3		1				32
Frontenac	2	6			1		7						16
Glengarry	9	7					3	1	2				22
Grenville	7	1					4		1				13
Grey	59	6					7		1				73
Haldimand	13	6	1				4		2				26
Halton	5	7	1					2	1				16
Hastings	13	5					11		1				30
Huron	56	15		2			16		1				90
Kent	16	20	5	2			8					1	52
Lambton	42	13	3	1			12						71
Lanark	18	4	2	1			5		2				32
Leeds	6	4	1				4		1				16
Lennox and Addington	5	5											10
Lincoln	6	4					7						17
Middlesex	34	31					10				2	1	78
Norfolk	7	12					1						20
Northumberland	15	9	1			1	5	3					34
Ontario	57	7					3		2				69
Oxford	18	9					7		1		1		36
Peel	28	2	2				3	1	1				37
Perth	46	8		1			18						73
Peterboro'	20	9					2		1				32
Prescott	6	2		1	1		3						13
Prince Edward	3	9					2						14
Renfrew	17	10	1	1	1		5		2				37
Russell	10	4		1	2		1						18
Simcoe	45	17	2				5		1				70
Stormont	6	2					2		2				12
Victoria	29	3					3		1				36
Waterloo	23	8					8		1		1		41
Welland	2	3	1	1			5						12
Wellington	41	9					4	2	1			1	58
Wentworth	7	4		1	1		7	1					21
York	56	15	4	1			12	5	4	1	1		99
New Ontario	39	23	1		1		11		1	1	1		78
Outside Points	5	1										1	7
	930	352	32	22	11	4	240	16	36	2	8	5	1,659

SUMMARY OF ENROLLED HORSES FOR THE YEARS 1913–1920

County	1913	1914	1915	1916	1917	1918	1919	1920
Brant	28	44	43	35	41	27	14	17
Bruce	103	114	99	91	95	93	76	76
Carleton	65	76	70	54	60	52	51	42
Dufferin	51	58	57	51	48	46	48	42
Dundas	44	41	43	38	29	16	13	14
Durham	60	63	67	52	43	42	37	34
Elgin	65	75	76	46	50	36	36	23
Essex	69	91	94	76	61	40	29	32
Frontenac	31	42	42	38	35	23	16	16
Glengarry	34	48	54	48	43	29	27	22
Grenville	37	32	28	21	21	20	14	13
Grey	108	121	118	94	87	79	67	73
Haldimand	47	50	54	50	38	32	32	26
Halton	27	29	25	32	30	23	15	16
Hastings	82	87	72	65	59	50	32	30
Huron	112	142	130	123	114	99	83	90
Kent	130	136	133	122	89	69	61	52
Lambton	113	134	126	108	88	71	71	71
Lanark	58	76	71	61	56	44	42	32
Leeds	50	52	40	25	25	19	21	16
Lennox & Add	45	42	33	29	29	24	13	10
Lincoln	27	33	31	15	16	16	10	17
Middlesex	128	158	154	142	112	73	68	78
Norfolk	57	60	53	40	39	24	22	20
Northumberland	50	51	48	53	43	28	31	34
Ontario	101	108	124	96	95	80	77	69
Oxford	77	86	90	77	57	36	35	36
Peel	52	72	70	65	47	46	42	37
Perth	81	102	105	86	67	71	74	73
Peterboro	46	46	52	44	50	32	34	32
Prescott	46	57	42	37	27	20	8	13
Prince Edward	29	27	36	26	28	19	15	14
Renfrew	85	91	78	55	62	53	45	37
Russell	39	52	38	33	34	26	18	18
Simcoe	139	157	145	120	100	82	74	70
Stormont	32	35	27	23	23	20	11	12
Victoria	48	66	62	70	68	53	37	36
Waterloo	48	59	54	47	45	43	44	41
Welland	17	28	28	26	22	14	12	12
Wellington	104	117	115	87	82	68	58	58
Wentworth	50	60	56	35	30	22	18	21
York	119	148	157	135	121	101	110	99
New Ontario	12	16	120	129	110	127	73	78
Outside points	14	19	17	21	14	5	15	7
Totals	2,760	3,201	3,177	2,731	2,433	1,993	1,729	1,659
Percentage of Grades	36	34½	32	30	26	23	0	0

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.



APPROVED Enrolment No.............. **FORM A 1**

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

.............................Registered in the...............................Stud Book as No..........

Owned by...of...Foaled in..........

has been enrolled under THE ONTARIO STALLION ACT. Inspected on the.............................day of

.............................19........, and found to be sound, of good conformation and an animal typical of the breed.

THE ONTARIO STALLION ENROLMENT BOARD.

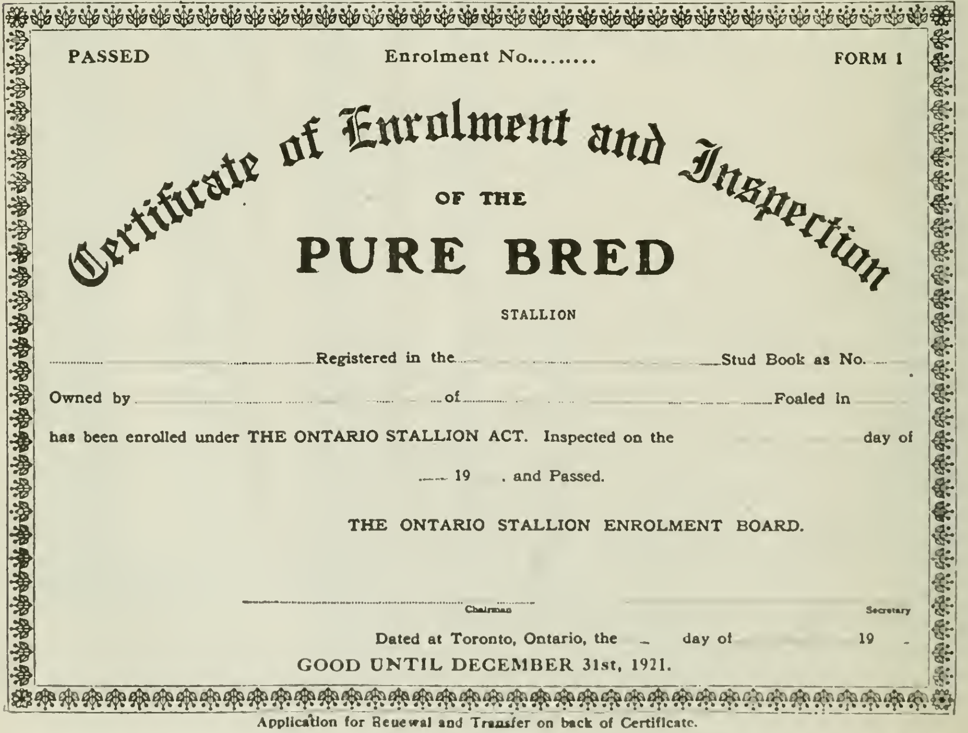
.... Chairman .... Secretary

Dated at Toronto, Ontario, the..........day of..........................19.........

GOOD UNTIL DECEMBER 31st, 1921

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.



PASSED Enrolment No........ FORM 1

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

.............................Registered in the...............................Stud Book as No..........

Owned by...of...Foaled in..........

has been enrolled under THE ONTARIO STALLION ACT. Inspected on the.............................day of

...... 19 ...... and Passed.

THE ONTARIO STALLION ENROLMENT BOARD.

.... Chairman .... Secretary

Dated at Toronto, Ontario, the ...... day of .... 19 ......

GOOD UNTIL DECEMBER 31st, 1921.

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

DEFECTIVE **Enrolment No.........** **FORM 2**

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

..............................Registered in the.............................Stud Book as No..........

Owned by..............................of..............................Foaled in

has been enrolled under THE ONTARIO STALLION ACT Inspected on the..............................day of

..............................19........, and found to..............................

....

THE ONTARIO STALLION ENROLMENT BOARD.

.... Chairman .... Secretary

Dated at Toronto, Ontario, the..........day of..............................19..

GOOD UNTIL DECEMBER 31st. 1921.

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

UNDESIRABLE Enrolment No. FORM 3

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

.... Registered in the .... Stud Book as No.

Owned by ....of ....Foaled in

has been enrolled under THE ONTARIO STALLION ACT. Inspected on the..............................day of

.... 19........, and found to be undesirable for use in the stud.

THE ONTARIO STALLION ENROLMENT BOARD.

.... Chairman .... Secretary

Dated at Toronto, Ontario, the day of..............................19

GOOD UNTIL DECEMBER 31st, 1921

Application for Renewal and Transfer on back of Certificate.

BELOW IS GIVEN LIST OF STALLIONS WHICH HAVE RECEIVED PREMIUM CERTIFICATES FOR THE YEAR 1920.

Name of Horse	Record No.	Breed
Lavis (imp.)	3897	Percheron
Gay Ronald	15342	Clydesdale.
Boulder Grange Du Fosteau	886	Belgian Draft.
Bricanan	6565	Percheron
Royal Marathon	19471	Clydesdale.
Baron's Court	18366	Clydesdale.
Bonnie Flisk (imp)	18260	Clydesdale.
Fyvie Pearl (imp.)	18263	Clydesdale.
Reminder (imp.)	18265	Clydesdale.
Solidity (imp.)	18367	Clydesdale.
Golden Taylor	18590	Clydesdale.
Black Gregor (imp.)	19658	Clydesdale.
Bonaday	1478	Standard Bred.
Carbrook Buchlyvie (imp.)	22039	Clydesdale.
Fyvie Bonus (imp.)	22265	Clydesdale.
Dandaleith Diamond (imp.)	22252	Clydesdale.
Destiny	21949	Clydesdale.
Kello Crest	21945	Clydesdale.
Westminster	21948	Clydesdale.
Hartington (imp.)	19655	Clydesdale.
Jess Willard	5124	Percheron
The Select	21947	Clydesdale.
Glad Eye (imp.)	21946	Clydesdale.
Graymont	9697	Percheron
Grecourt Junior	9695	Percheron
Diamond	9696	Percheron
Hannibal	9698	Percheron
Ames Inclement	9703	Percheron
Lord Ullin (imp.)	15191	Clydesdale.
Helsington Champion	21944	Clydesdale.
Cumberland Steel	22070	Clydesdale.
Alberta Besique	6510	Percheron
Joe Marathon	20069	Clydesdale.
Burt Axworthy	1845	Standard Bred.
Royal Design	17286	Clydesdale.
Lord Malcolm (imp.)	15194	Clydesdale.
Baron Alton (imp.)	15295	Clydesdale.
De Wilton (imp.)	634	Hackney.
Dunure Lucky Star	15379	Clydesdale.
Dunure Beaulieu (imp.)	12681	Clydesdale.
Dunure Captain (imp.)	14126	Clydesdale.
King Junior (imp.)	1063	Shire.
Scottish Gem (imp.)	12560	Clydesdale.
Rosyth (imp.)	18326	Clydesdale.
Aurelian (imp.)	18325	Clydesdale.
Royal Favour	18361	Clydesdale.
Croton Forest King	1222	Shire.
Riverbank (imp.)	17954	Clydesdale.
Colonel Bowers	19005	Clydesdale.
Dandy	5542	Percheron
Karrara (imp.)	3071	Percheron
Warwick Model (imp.)	304	Hackney.
Jabot (imp.)	3139	Percheron
Colonel Graham (imp.)	9235	Clydesdale.
King Thomas (imp.)	9254	Clydesdale.
Commodore (imp.)	9596	Clydesdale.
Clarion (imp.)	15146	Clydesdale.
Joe Gleam	16716	Clydesdale.
Ken Favourite (imp.)	16472	Clydesdale.
Horizon (imp.)	16341	Clydesdale.
Mouchoir. (imp.)	4725	Percheron
Prince Palatine (imp.)	15907	Clydesdale.
Peter Wilton	858	Standard Bred.
Impeccable	2245	Percheron
Royal Hero (imp.)	9715	Clydesdale.

BELOW IS GIVEN LIST OF STALLIONS WHICH HAVE RECEIVED PREMIUM CERTIFICATES FOR THE YEAR 1920.

Name of Horse	Record No.	Breed
Earl O'Clay	12035	Clydesdale.
Terrington Cetewayo (imp.)	401	Hackney.
Tressilian (imp.)	16332	Clydesdale.
Everard (imp.)	16333	Clydesdale.
Baron Senwick (imp.)	16408	Clydesdale.
Kodi (imp.)	4462	Percheron
Lively	8669	Percheron
Tara Baron	17148	Clydesdale.
Baron Dalmar	20419	Clydesdale.
Billy Bingen	2182	Standard Bred
Pride of Dunedin	17299	Clydesdale.
Roliere	7374	Percheron
March Past	19994	Clydesdale.
Woodrow Wilson	8668	Percheron
Spey Pearl	780	Thoroughbred
Regent Donald	20304	Clydesdale.
Dextro	7819	Percheron
Monogram	8304	Percheron
General Joffre	20453	Clydesdale.
Eastfield Charles	19762	Clydesdale.
Intellect	8830	Percheron
British Hero	20573	Clydesdale.
Taft	9071	Percheron
Prince Acme	15573	Clydesdale.
Sir James of Alton (imp.)	17283	Clydesdale.
Jerry J.	0101	Standard Bred.
Craigie Baronet (imp.)	17599	Clydesdale.
Merry Baron (imp.)	17284	Clydesdale.
Chieftain	4583	Percheron
Craigie Junior	17080	Clydesdale.
Lord Erskine Cairndale	17038	Clydesdale.
The Count of Hillcrest	15774	Clydesdale.
Baron Clifty (imp.)	17266	Clydesdale.
Dunure Gulf Stream (imp.)	16859	Clydesdale.
Major Cormier	3742	Percheron
Sir Simon Romeo	16919	Clydesdale.
Raith Standard (imp.)	16180	Clydesdale.
Ravenscraig, (imp.)	16860	Clydesdale.
Prince Blue	1315	Standard Bred.
Village Swain (imp.)	15167	Clydesdale.
Junior (imp.)	3824	Percheron
Lambton (imp.)	15299	Clydesdale.
Laurie Kitchener	21463	Clydesdale.
Baron Bobs	21952	Clydesdale.
Intime (imp.)	6219	Percheron
Richardson Model	20526	Clydesdale.
Ever Ready (imp.)	21951	Clydesdale.
Aberdonian (imp.)	21953	Clydesdale.
Sir Simon	20631	Clydesdale.
Mac Brino	2950	Standard Bred.
Isly (imp.)	3066	Percheron
Dunure David (imp.)	13674	Clydesdale.
Gladiator 2nd	17237	Clydesdale.
Tom McNab (imp.)	9800	Clydesdale.
Charles Gilbert	360	Thoroughbred
Honest John	12083	Clydesdale.
Journalier (imp.)	2330	Percheron
King's Champion (imp.)	13174	Clydesdale.
Prince of Greenhall (imp.)	11684	Clydesdale.
Pride of Glencairn (imp.)	10377	Clydesdale.
Sir David Junior	14458	Clydesdale.
Viscount Kinnaird (imp.)	13822	Clydesdale.
Royal Cadet (imp.)	13844	Clydesdale.
Spartan (imp.)	509	Hackney.
Lord Gray (imp.)	12390	Clydesdale.
Elmer Dickson	2295	Standard Bred.
Black Beauty	8670	Percheron

Co-Operative Car Shipments

CO-OPERATIVE SHIPMENTS OF LIVE STOCK

Below is given the shipments for the years 1908 to 1920 inclusive, and that for 1920 in detail:—

NUMBER IN EACH SHIPMENT.

Year	Horses.	Cattle.	Sheep.	Swine.	Total.
1908	22	74	14	15	125
1909	25	70	84	4	183
1910	39	51	36	7	133
1911	58	51	51	18	178
1912	51	45	24	20	140
1913	47	71	107	21	246
1914	49	97	34	20	200
1915	28	104	76	8	216
1916	59	185	100	22	366
1917	70	269	196	15	550
1918	67	250	180	4	501
1919	24	154	154	4	336
1920	18	110	37	6	171

DETAIL OF CO-OPERATIVE SHIPMENTS FOR 1920.

Stock.	Feb.	March.	April.	June.	July.	Total.	
Horses—							
Clydesdales	2	4	4	1	1	12	
Percherons		5				5	
Hackneys					1	1	18
Cattle—							
Shorthorns	24	15	18	1	1	59	
Jerseys		1		1		2	
Aberdeen-Angus	5	7	6	4		22	
Holsteins		2	8	1	2	13	
Hereford		3	2	3		8	
Ayrshire	1		1		4	6	110
Sheep—							
Shropshires	10				5	15	
Leicesters	3					3	
Southdowns					6	6	
Oxfords					13	13	37
Swine—							
Yorkshires	2		2		1	5	
Berkshires		1				1	6
	47	38	41	11	34		171
No. of Cars	2	3	3	1	1		

Incorporated Poultry Associations

Name of Association	Secretary
Aurora Poultry Association	J. B. Spurr, Aurora.
Aylmer Poultry Association	Fred D. King, Aylmer.
Beamsville Poulty Association	J. A. Sinclair, Beamsville.
Barrie Poultry Association	A. Hutchinson, Barrie.
Belleville Poultry Association	J. W. Holley, Belleville.
Border Cities Poultry Association	B. McCallum, Box 56, Windsor.
Bradford & W. Gwuillimbury Plty. Ass'n	O. M. Seim, Bradford.
Brampton & Peel County Poultry Association	E. Gregory, Brampton.
Brantford & Brant County Poultry Association	A. A. Freeborn, Brantford.
Brockville Poultry Association	L. Neddo, Brockville.
Caledonia Poultry Association	H. H. Berscht, Caledonia.
Carleton Place Poultry Association	A. M. Johnson, Carleton Place.
Chatham Poultry Association	W. H. Black, Chatham.
Collingwood Poultry Association	A. Hutchinson, Collingwood.
Dufferin County Poultry Association	H. A. Dorrance, Orangeville.
Dundas & N. Wentworth Poultry Association	G. H. Kennaugh, Dundas.
Dunnville & Haldimand Poultry Association	M. C. Kaufman, Dunnville.
East York Poultry Association	S. Foster. East Toronto.
Elgin Poultry Association	John Farley, St. Thomas.
Fort Francis Poultry Association	Wm. Bartley, Fort Frances.
Galt Poultry Association	L. Hinrich, Galt.
Gananoque Poultry Association	E. H. Hurd, Gananoque.
Guelph Poultry Association	S. Occomore, Guelph.
Hamilton & Wentworth Poultry Association	H. Hall, Hamilton.
Hanover Poultry Association	J. E. Boss, Hanover,
Ingersoll & South Oxford Poultry Association	E. M. Zeller, Ingersoll.
Kenora Poultry Association	F. W. Jackson, Kenora.
Kimberley Poultry Association	R. W. Lawrence. Kimberley.
Kingston Poultry Association	F. J. Coldham. Kingston.
Kitchener Poultry Association	S. Englert, Kitchener.
Lambton Poultry Association	W. R. McDonald, Petrolia.
Lindsay Poultry Association	E. Beadle, Lindsay.
Listowel Poultry Association	A. S. Inkley, Listowel.
London Poultry Association	H. Layng, London.
Mitchell & Perth County Poultry Association	W. E. Edwards, Mitchell.
Napanee Poultry Association	E. W. Metcalfe, Napanee.
New Ontario Poultry Association	E. Noble, Sault Ste. Marie.
Nickel Belt Poultry Association	D. J. Robicheau, Sudbury.
Norfolk Poultry Association	H. A. Carter, Simcoe.
North Bay Poultry Association	H. J. Herbert, North Bay.
Northern Ontario Poultry Association	Wm. Mackereth, Fort William.
North Wellington Poultry Association	J. A. Farrell, Arthur.
North York Poultry Association	F. J. French, Newmarket.
Northumberland & Durham Poultry Association	J. H. Magill, Port Hope.
Oakville Poultry Association	B. Galley, Oakville.
Oakwood Poultry Association	W. A. Scott, 155 Tyrell Ave., Toronto.
Ottawa Poultry Association	W. A. Rush. Ottawa.
Owen Sound Poultry Association	R. Tiner, Owen Sound.
Palmerston Poultry Association	Chas. Patmere. Palmerston.
Paris Poultry Association	A. G. Bragg, Paris.
Peterboro Poultry Association	J. T. C. Lane. Peterboro.
Powassan Poultry Association	Approved 1917. no show held.
Power City Poultry Association	D. M. Allen, Niagara Falls.
Prince Edward County Poultry Association	Geo. R. Moore, Picton.
Progressive Poultry Association	F. Hickling. Wallaceburg.
Renfrew Poultry Association	M. H. Winter, Renfrew.
Russell County Poultry Association	C. E. McCaffrey, Russell.
Riverdale Poultry Association	G. Crysler, 32 Knox Ave. Toronto.

Sarnia Poultry Association	G. W. Stephenson, Sarnia.
Smith's Falls Poultry Association	G. Gallipeau, Smith's Falls.
South Bruce Poultry Association	H. H. Dam, Walkerton.
St. Catharines Poultry Association	J. M. Cameron, St. Catharines.
Stratford Poultry Association	H. S. Morrow, Stratford.
Tavistock Poultry Association	S. Zehr, Tavistock.
Temiskaming Poultry Association	Levi Soper, Englehart.
Tillsonburg Poultry Association	Wm. Cadman, Tillsonburg.
Toronto Poultry Association	H. H. Dowton, 195 Cowan Ave, Toronto.
Waterloo Poultry Association	E. C. Schmidt, Waterloo.
West Elgin Poultry	Thos. W. Simms, West Lorne.
Waterdown Poultry Association	J. J. Creen, Waterdown.
Wiarton Poultry Association	W. J. Brown, Wiarton.

The Ontario Horse Breeders' Association

The Annual Meeting of this Association was held in the Carls-Rite Hotel at 10.30 a.m., Wednesday, February 9th, 1921.

OFFICERS

President	John A. Boag, Queensville,
Vice-President	John Gardhouse, Weston.
Secretary-Treasurer	J. E. Rettie, Toronto.
Executive Committee	T. H. Hassard, Markham; Wm. Graham, Claremont; W. G. Hill, Queensville; C. W. Gurney, Paris; W. L. Mossip, St. Mary's; W. S. Scott, Sutton West; Geo Pepper, Toronto; O. B. Shepherd, Toronto.

Directors

Canadian Clydesdale Association

Wm. Smith, Columbus.
Peter Christie, Manchester.
Jas. Torrance, Markham.
T. H. Hassard, Markham.
W. L. Mossip, St. Mary's.
Wm. Graham, Claremont.
John Moore, Queensville.
F. Richardson, Columbus.
John A. Boag, Queensville.
W. Scott, Sutton West.
J. Henderson, Thamesford.
Robt. Graham, Toronto.
J. Gould, Uxbridge.

Canadian Shire Association

John Gardhouse, Weston.
Amos Agar, Nashville.

Canadian Percheron Association

E. C. H. Tisdale, Beaverton.
W. G. Hill, Queensville.

Candian Standard-Bred Association

O. B. Shepherd, Toronto.
Geo. Pepper, Toronto.

Canadian Thoroughbred Association

J. J. Dixon, Toronto.
Col. Wm. Hendrie, Hamilton.

Canadian Pony Society

Dr. Fowler, Toronto.
Jas. Creech, Lambton.

Director Ontario Live Stock Branch

R. W. Wade

Representatives to Fair Boards

Canadian National Exhibition:—John A. Boag, Queensville.

Western Fair, London:—Wm. Mossip, St. Mary's; George Charlton, Duncrief.

Central Canada Exhibition:—Wm. Smith, M.P., Columbus; Adam Scharf, Cummings Bridge.

Ottawa Winter Fair:—Adam Scharf, Cummings Bridge; Wm. Smith, M.P., Columbus; W. J. Bell, Kemptville; T. C. Bate, Ottawa.

Ontario Provincial Winter Fair:—John A. Boag, Queensville; Peter Christie, Manchester (heavy horses) T. H. Hassard, Markham; H. M. Robinson, Toronto, (light horses).

Royal Agricultural Winter Fair:—John A. Boag, Queensville; William Graham, Claremont; Peter Christie, Manchester.

Eastern Canada Live Stock Union:—Wm. Smith, M.P., Columbus.

FINANCIAL STATEMENT

OF THE ONTARIO HORSE BREEDERS' ASSOCIATION FOR THE YEAR ENDING DECEMBER 31ST, 1920.

Receipts	
Cash on hand as per last report	$590 21
Government Grant, 1920	500 00
Total	$1090 21
Expenditures	
Directors' Expenses	304 16
Special Prizes Awarded the Ontario Provincial Winter Fair	322 00
Printing Notices of Annual Meeting	7 48
Hotel Carls-Rite, Rental of Room	5 00
Auditor	3 00
Reporting Annual Meeting	15 00
Toronto Open Air Horse Parade, Grant	25 00
Eastern Canada Live Stock Union, Membership Fee	25 00
Telephone Calls	2 70
Cash on hand	380 87
	$1090 21

(Sgd.) JOHN A. BOAG,
President.

(Sgd.) J. E. RETTIE,
Treasurer

ADDRESS

JOHN A. BOAG, *President.*

During the past year the Executive of the Association have held several meetings in order that they might keep in close touch with all activities of the horse breeding industry. They are pleased to be able to report that the Minister of Agriculture acted upon their recommendations with reference to providing premiums for desirable stallions in the Province. During 1919, $4,000 was set aside for this purpose. In the year 1920, $6,000 was appropriated. We believe that this form of assistance to horse breeding has had a very good effect. It has, in many cases, made it possible for a man to keep a good stallion within the Province which he would otherwise have been obliged to sell to go to some other Province or outside of the country entirely.

Another matter which has received considerable attention from your Executive, has been the question of freight and express rates. Representations with reference to the need of opposing any increase in these rates were made to the Eastern Canada Live Stock Union. A Committee from this Association met with the Board of the Eastern Canada Live Stock Union and other Live Stock Associations and assisted in the organization of a Committee representing all Live Stock interests to oppose increases in these rates. We regret to report, however, that, notwithstanding the representations made by the Live Stock men, increased rates have been granted by the Board of Railway Commissioners for both freight and express. The question of freight rates, however, is to be reheard and the Live Stock interests will be represented, as on the former occasion, by a strong Committee and in addition by Counsel. It is hoped that, as a result of this rehearing, some substantial relief will be afforded the live stock industry in this respect.

During the past three or four years the market for horses has been very dull and the price obtained very low in comparison with other lines of live stock. This was due to a number of reasons, chiefly the result of abnormal conditions brought about by the war. All manufacturers of motor trucks and tractors were particularly aggressive in their selling campaigns. Aided by the fact that labor was very scarce, there was a desire on the part of everyone to alter their methods of business and farming, so that one man could perform the greatest possible amount of work; many horses being replaced by trucks and tractors. During the past year it has become evident to those using these machines that, in many cases, the saving was much more apparent than real. While it was possible to move larger loads by motor truck than by horse-drawn vehicles, it has been found that, in many cases, it was done at an excessive cost when the great depreciation of the machines was taken into consideration. It was also found that, while one man could perform a great deal more of certain kinds of work while using tractors on the farm, that there were many operations where it was still essential to have horses. The cost of production by the use of tractors was, in many cases, very greatly increased. The discovery of these facts by the use of trucks and tractors, coupled with the further fact that, in the later part of the year 1920, the price of gasoline and oil for operating these machines advanced very greatly in price, while the cost of hay and oats for feeding horses has been declining, has caused many people to seriously consider returning to the use of horses.

During the past three months, while the prices of horses have not advanced materially, the demand for them has become keener. A large number of cartage and transportation companies are laying aside many trucks for all short haul purposes and are looking about for horses of suitable weight and quality. I feel confident that there will be a good market at remunerative prices for horses of proper weight and quality in the future. The market for breeding stock has also been dull during recent years, but has now began to reflect the optimism prevailing in the market for commercial horses. Importations of breeding stock from the British Isles have been resumed on a small scale during 1920, which will give us an opportunity of obtaining more of the good blood which we require to the horse population of Ontario. I feel that we may all look forward with confidence in the horse breeding industry in this Province for a number of years to come. Everyone who has studied the matter, I believe, is of the same opinion that the price of horses, in comparison with other classes of live stock, will compare much more favorably than it has for the last five years.

ADDRESS

Dr. J. H. Grisdale, *Deputy Minister of Agriculture, Ottawa.*

I am keenly interested in the industry with which you are connected. It is an industry that seems to be passing through rather deep waters just at the present time, but the water is receding and we are now likely to get out of the high tide in the near future. Everything points to an increase in the breeding of horses and to a bright future for this line of work. Our own investigations in connection with the Experimental Farm and my own observations all over Canada during the past twenty years in connection with this tendency to replace the horse by the tractor. and observations and investigations of men who are keenly interested in this matter in other countries, particularly in the United States, all point to the fact that the high tide of the tractor is past and the horse is coming back to his own. Our own records of cost of operation as between the tractor and the horse. and the records in the United States, point to a very much greater cost of the work when done by the tractor than when it is done by the horse, when everything is taken into consideration. The life of the tractor is short, and the skill required of the men who handle it is great, and the possibility of a sudden stopping in the work is very much greater than where the horse is used. I know of an instance where a man was using tractors for his work at seeding time, and it is particularly important in the West that no time be lost, because if the seeding is not in at a certain date it is no good for that year. This man lost his whole crop because they were depending on a large tractor to get in their seed, and it broke down at a critical moment and they were ruined. Some of the largest operators of farms in the West have had the same experience, and have abandoned the tractor and are going back to the horse. For the small operator there is absolutely no question about it, the horse is the most economical.

There have been faults in connection with horse breeding. We have been keen to breed horses regardless of what kind of horse it was, and anticipating the demand to be so great that we could make money. It is time that as horsemen we make a little change in our general policy and attempt to produce better horses. Marked improvement has been made in every Province in Canada. There is certainly a demand for good horses all over the country. We have had an experience recently which shows that if you have the right article you can get a high price for it, and we should do everything we can in the way of propaganda to advance the interest of this industry. There is no danger of the bottom falling out of the market, and there is no danger of the horse going into disuse. It is bound to have a future in this country, and in my opinion the future is brighter at the present moment than it has been for the past ten years, because men are coming to the conclusion that the tractor is not going to be a successful rival of the draught horse.

Another line of breeding that is being taken up in Canada is breeding remounts. That is a sore question with some people, because we have some rather abortive attempts to do something along this line. I think there is a place for that in this country if only common sense is used. There is a demand for a thousand re-mounts each year, not for use in Canada exclusively, but there is a demand in Canada for 400 or 500 every year. That of course is a small matter in comparison with the number of horses we breed, but if we can get the right type of horse, then we shall have done something to encourage a demand from the outside. At the present moment there are a number of buyers from the United States looking for horses of this character in Eastern Canada, and wherever one is heard of, he is rapidly snatched up.

The plan to have a Thoroughbred here and there all over the country, I consider is a serious mistake. They are possible in certain districts, and these districts can be exclusive for that kind of breeding. I know such districts at the present time, and the horses that have come out of there have been of good quality and meet a ready sale, and they are being bought at a very high figure. They are bought by the Military or Mounted Police of the country, and some have been taken to the United States and have commanded excellent figures. Four last year were taken there and brought about $1,200 apiece. Of course a large part of that value was due to the training, but as they were only three and four year olds, the training could not be very extensive.

Another line that I think horsemen might advisedly work along is that of concentrating breeds, and making certain districts important in certain lines. I have in mind the work that has been done in some parts of this country in the work of dairy cattle where one breed predominates, and where that breed is found in large numbers of an excellent quality. Buyers will pay a larger price where they can buy them in large quantities than they would otherwise, and there is no reason why that should not be more extensively developed in the horse line. There is more or less an unnecessary mixing of the different breeds. There is absolutely no reason why certain districts should not become even more prominent in connection with certain breeds than is the case at the present time.

The future for the breeder of horses is excellent, and I wish you every success, which your untiring and undiscouraged efforts deserve.

Mr. Gardhouse, the Secretary of this Association received a communication asking a member of the Association to attend a meeting in Chicago of the Horsemen. The President was unable to attend, and as I was over there at the Show, I was asked, as Vice-President to represent you. I was very much taken with the Exhibition, and the meeting that the American Horse Breeders' Association had at Chicago. At the banquet held in the evening, there were from 400 to 500 people present, and a great deal of information was brought out, which went to show that for reasonable distances, the horse was very much cheaper than tractor power. It was shown quite conclusively that the horse was going to come back again. One of the important things that struck me at the meeting was that not only the farmers and horse breeders were interested, but they had the support and interest of practically every organization connected with the horse industry—the harness makers, the transportation companies, the blacksmiths and some of the bankers. It appeared to me that they were doing a great work, and it would be well that this Association should try and get in as close touch with them as possible and see if we could not join them in some way, or organize something along the same line in order that we might be able to bring the horse industry permanently before the people of this Province.

I have said many times that I was unable to see how the ordinary farmer of this country could put his money into a tractor and get it out again when he has to rely on a certain number of horses for certain kinds of work on the farm. Mr. Dinsmore, the Secretary of the Association, gave an exceptionally fine address, and it would be well worth the while of every horseman to get a copy of the report of that meeting and read the addresses.

Mr. Hill: When at the meeting in Chicago, I took up the matter with the Secretary as to our co-operating, and he thought the right way for us to proceed would be to buy a certain number of shares in their company. They would like the Ontario Horse Breeders to buy some shares and help the thing along in that way.

They had in one building, photographs to show the difference in the cost of doing different kinds of work, between horse power and mechanical power, and they thought it might be possible for us to put on something of that kind over here at the Toronto Exhibition, as it is the largest exhibition of the kind in the world, so as to educate the people as to the value of horse power.

Lt.-Col. Wm. Hendrie, Hamilton: You can readily understand that the manufacturers of motor trucks with the tremendous organization that they have all over the United States are a very great factor in hypnotizing people into the idea that if they buy a tractor their troubles would be much lessened, and the cost of the work would be much cheaper. We do use a few trucks in Toronto and Hamilton because of the climatic conditions and the streets, which are able to give us an opportunity to use them. On a short haul the truck cannot compete with the horse. In a big city like Toronto where there are so many hold-ups, because you have to cross many carlines and you have to dodge in and out of lanes and you have to wait your turn to make delivery, every time you start and stop the engine, you are wasting power. Then when you get into the larger trucks, they will not move as big a load and handle it as well as a good big pair of draught horses, and the overhead charge on a truck is very heavy. If you have $7,000 or $8,000 in a motor truck, and if it is not going continuously, you have to meet all that expense. Some of the truck drivers are inexperienced, and they will do as much damage in a half hour to a truck as would take all the profit from that truck for at least a month. The people are carefully considering these things, and I do not think the truck is going to do away with the horses in city transportation. The truck is used by some firms to deliver goods where there are good roads like The Toronto-Hamilton Highway, and they can use them to advantage where it is their business to get their goods to their customer as soon as possible and with as little damage as possible, and they are willing to overlook any extra cost over railway transportation.

I am interested in the draught horse, as I buy a great many of them in Ontario and I suppose we are as good customers of the farmers as any people in Ontario, and I therefore feel I am identified with a meeting of this kind.

Mr. George Pepper: This Association in the United States has from $250,000 to $300,000 for propaganda work, and if we could join with them and have our name appear as being associated with them, it would not cost us much, and the United States is the best market we have for heavy horses. I think this organization would be justified in appointing a committee to open negotiations with them as to on what conditions they would use our name in advertising propaganda, and what the cost would be. This meeting should recommend to the Executive that they take the matter up and see what results could be obtained. I have pleasure in moving such a resolution.

The Secretary: The funds this American Association are raising are largely paid by harness makers, horse shoe makers, and horse truck makers, and for every dollar the horsemen put up these associations are putting up four dollars; so if we as horsemen take a certain amount of stock, it would mean that we would be helping out $5 for every $1.00 we put up.

Mr. Dixon: It seems to me that the whole thing resolves itself into a question of finances. How much money are we in a position to put up? I do not know of any time that our Government is in better shape to take up questions of this kind than at the present time. They have a revenue of $1,000,000 that was taken purely out of the horse business, and if we are not careful that $1,000,000 will go into the general funds, and the horse industry will not get any benefit from it.

Mr. Pepper: Sometime ago we went to the Government to ask for a grant to employ counsel to fight the increased freight rates, and they told us this money did not come from the horse interests but it came from the gambling interests.

Col. Hendrie: There are representatives here from all agricultural interests. I am engaged in agricultural work, and my family have been for over 50 years, and we still have the farm working to-day that my father had 40 or 50 years ago when he was importing sheep and cattle and Clydes from the Old Country. Mr. Pepper has mentioned this gambling money. I do not think that is the right word to use in a matter of this kind. The present Government is no different from any other Government, because they treated it in the same way. The people of Ontario have contributed this money through amusement, and I look upon it as an amusement provided by the running horse, and from that between $900,000 and $1.000.000 of actual money has been paid into the Provincial Treasury. It seems to me to be an unfair view to take that not one dollar should come out of that large amount of money to assist the breeding of horses, especially the thoroughbred horse. The breeding of the Clydesdale, the Shire and the Hackney should be encouraged, but the thoroughbred horse has been totally ignored, and it is the thoroughbred horse that provides this money, and the thoroughbred horse will possibly do so again this year.

I think some members of this Association should go to the Minister of Agriculture and set forth these details, not with the idea of criticizing too strongly, because we do not want to do that in these days. We have enough criticism and trouble without making more, but we might point out the desirability of helping the breed of horses that has done so much good in the Province of Ontario in years gone by.

There are some other gentlemen with me who are interested in the thoroughbred horse. Mind, I am not referring to pure-breds; I am referring to the Thoroughbred.

Mr. George Pepper: That is a very valuable suggestion. Col. Hendrie has asked for 10 per cent. of the $1,000,000 to be used for the advance of the horse industry, and I do not think it is at all out of place, and I think we should thank Col. Hendrie for the Memorial.

Mr. McFarlane: Col. Hendrie, Mr. Pepper and Mr. Dixon have already said nearly everything that is to be said. I know the riding horse is very scarce in this country, because they advertised for horses for military purposes at London two or three weeks ago, but they were not able to get more than five. I think the thoroughbred horse should be encouraged, because they are a very useful horse and they command a good price if they are of the proper riding type.

Mr. Wade: In preparing a proposition for the encouragement of any class of horse you should consider whether you have a scheme which is workable. In looking over the number of stallions used in the Province of Ontario, we find that one drawback to the stallion of the lighter breeds is the fact that there does not seem to be a sufficient number of suitable mares in the vicinity where the horse is placed. In any section of Ontario where there is a light type of mare a first class stallion either Standard bred or thoroughbred would be of the greatest benefit. The Hon. Mr. Doherty received an offer from the Hendrie Estate in which a thoroughbred stallion was offered for use in the Province of Ontario. We took it up in points in Ontario where such a horse might be used, such as the County of Wentworth, Kent, Essex, Prince Edward County, Dufferin and the district around Kemptville. We received a letter from the principal of the Kemptville School, Mr. Bell, in which he stated that there was in that section a type of mare which would be very suitable for breeding to a Thoroughbred horse and that he would be only too pleased to accept the offer and handle this horse. I would again call attention to the fact that in bringing this matter up, you should have some definite policy to present.

COL HENDRIE: The policy of the Thoroughbred Horse Society, of which Mr. J. J. Dixon is President, is this: The Society is not very strong in numbers, and we have not a great deal of money, but what we do get yearly, we put it out and we give premiums to thoroughbred stallions at the different Shows throughout the Province. If only one stallion is shown at a Show it gets the premium. There is no question about it, but the light mares have gone, and we are really, from that point of view, back where we were more than fifty years ago, and we have to start from the foundation, and the thoroughbred horse and the lighter class of mare is the foundation stock for the lighter breeds.

MR. DIXON: The plan as proposed by the Thoroughbred Association is to add to the prize list a sufficient sum of money to attract the showing of Thoroughbred Stallions. When we first started out we had great difficulty, but at the present time we are contributing to about 15 different shows, and instead of giving $10 to $15, we have increased the premium. We have realized that owning a thoroughbred stallion is a pretty poor business proposition, because there is not much money in it. Some years ago we used to give $30 as first prize for a Thoroughbred stallion. We had it increased to $150 for the first prize, and the following year we had 12 entries, showing that if we had the necessary funds to encourage these men, we will have thoroughbred stallions at the Fairs. The suggestion is that we should get a little assistance from the Ontario Government out of this money they have received.

MR. MILLER: I have listened with a great deal of pleasure to the address, especially Col. Hendrie's. But there is one point that I would like to bring before the Horse Breeders. I wish to point out one of the drawbacks, and one of the reasons for the scarcity of horses to-day, is because the man who owns a good mare, and tries to breed her to the best stallion and expects to make a profit cannot do so. I have found that men invariably turn to other branches of farming that will produce more money. That is the whole secret of the decadence of the horse business. The individual breeder is simply dropping out. What advantage is it to a man if he only receives a small profit for his horse? It does not pay for the service and loss of the mare's time and the feeding of the colt. There has not been a profitable market for that kind of horse. I make a little money buying horses, but I would not adopt the breeding of horses for a business.

MR. BOVAIRD: I am interested in the thoroughbred horse, and the thoroughbred Horse Society tries to encourage the breeding of thoroughbred horses. I was fortunate in getting a grant for our fair in Brampton last year, but I found that there was not going to be any horses shown excepting my own, and I thought they would think "Jimmy is drawing water to his own mill," and I asked the privilege of changing and giving the prize to the get of thoroughbred stallions. Nine colts were shown, and three of these colts sold before they left the fair ground. The man who bought them for saddle horses would have to keep them for a couple of years, but saddle horses are so scarce that you can sell a two year old if he is the right type. It would be a good business to encourage the thoroughbred stallion.

Mr. Pepper: I move that the directors be asked to give their very best consideration and co-operation to this question, and that it be brought to the attention of the Government and that Mr. Dixon and Col. Hendrie be asked to co-operate with the committee. (Motion seconded by Mr. Hill and Carried.)

Mr. Gardhouse: I have always felt that Ontario should be the breeding ground for the rest of Canada. I have often wondered why it is that the Western man should want good horses, and should have to go across the water to get them. The breeders of Ontario should be able to supply the West with all the horses they want, but unfortunately we have not had a sufficient number of good horses here. There are not a sufficient number of good mares in the country to breed all these horses. But that does not say that we should not encourage the getting of horses.

Mr. Sheppard: I am the representative of the Standard Breed Association. I have been pleased with what has been said by Col. Hendrie and Mr. Dixon with regard to the Thoroughbred. There are no two classes as closely allied as the Thoroughbred and the Standard bred. The Thoroughbred is the foundation stock of the Standard bred. I attribute the fact that there are so very few mares in the country to the fact that an enormous amount of horses were taken out of the country during the war and a big percent of the horses that were used during the war were of the Standard bred and thoroughbred origin. It was a thoroughbred horse crossed with a Hackney mare that the great American Trotting horse was developed from. We have got to start back again and use the Thoroughbred to develop our horses, a cross with a Thoroughbred or a Standard bred will produce the horse that is needed for the army. I cannot help but think that the enormous amount of money that has been received by the Provincial Government for Race Track Licenses should be spent for the purpose of encouraging the breeding of Thoroughbred and Standard-bred horses. This is a great industry but it has been allowed to run down. I think the Standard-bred and the Thoroughbred horse are going to live. We can talk as we like about tractors and mechanical power. Every third or fourth farmer has now got a tractor and an automobile and they are doing away with the horse on the farm to a great extent. In the summer time the farmer uses the automobile and the winter time he cannot, and the Standard-bred is the one he is going to keep for winter driving.

Mr. Pepper: We should ask the Ontario Stallion Board to report, and they should consult with us and secure the best information they can as to their line of action, as it is now it seems to be in the hands of four men who carry it on and do as they see fit, and they do not consult the horse breeders who gather together annually.

Mr. Wade: In connection with the inquiry of Mr. Pepper regarding the work of the Enrolment Board, Gentlemen who have followed the proceedings of the Ontario Horse Breeders' Associations for the last ten years and of the Enrolment Board since it was formed are aware that there has been a close co-operation between the stallion Enrolment Board and the representatives of the Horse Breeders of this Province. There has not been at any time any legislation put forward in connection with our Enrolment Act which has not been either suggested or approved by this Association.

As regards the policy of the Enrolment Board, the endeavour has been by the grading of stallions with the most careful inspection, to insure in the mind of the public the importance of the fact that there is a difference between stallions. At the present time we have four certificates: one certificate is called A1., and that certificate calls for a horse that is sound, of good conformation and typical of the breed. The next certificate is what we call Form 1. That is not quite as good as an A1. The Horse may have some defects, but he should be reasonably sound, though some slight unsoundness might be passed.

The next certificate is Form 2, and it is called Defective Form 2. It states that the horse has been inspected and found to be defective. That means, he may be defective in conformation or he may have some of the diseases specified in the Act. This form is put in a very prominent colored paper, so that the mare owners seeing it ought to be able to tell that the horse is defective, even if they do not read the certificate.

The next certificate was introduced by the Enrolment Board in order to lead up to legislation, and we call it Unsuitable Form 3, and it reads: "Inspected on such a day and found to be undesirable for use in the stud."

There was a recommendation forwarded to the Minister of Agriculture in which it was asked that certain amendments to the Stallion Enrolment Act should be made so that a horse examined by the inspectors and recommended by them for this Unsuitable Form 3 would not be allowed to serve in the Province of Ontario. This is not law, but it can be made law by an Act of the Legislature. The recommendations from the Enrolment Board to the Government are in our 1920 report, and it will only take a moment to read one or two of the changes:

"In order that it shall be known by the Department that stallion owners are properly advertising their horses, the law be amended to read: 'That two copies of every bill, poster or advertisement, shall be mailed to the Secretary of the Stallion Enrolment Board, Toronto, by the person or firm employed to print or publish such advertisement.'

(3) That any bill, poster or other printed matter advertising any stallion for public service shall be evidence that such printed matter was used to advertise the stallion named with the consent of the owner of the said stallion.

(4) The certificate of enrolment and inspection of any stallion shall form a prominent part of any newspaper or other printed advertisement issued to advertise such stallion with this exception, that in the case of advertising in a newspaper, the name, enrolment number, form of certificate, and the words describing form of certificate, the date issued, need alone be printed.

(5) That where in the opinion of the Board the report on any horse would lead them to believe that the use of such horse for breeding purposes would be detrimental to the horse industry of the Province of Ontario, in such case the Board would issue a statement to the owner of such stallion, describing the defects of the stallion in detail, and informing the owner that such horse was not considered suitable for breeding purposes, and therefore, he could not be used for public service in the Province of Ontario. Such notice could be rescinded if on re-inspection the horse would afterward be considered to be suitable.

(6) It should be made plain in the Act that no stallion owner can collect service fees for a horse that is not enrolled at the time of service.

(7) If the mare owner neglects or refuses to pay the service fee before the first day of November in the year in which the colt or filly was foaled, the owned of any stallion which was enrolled at the time of service or his representative may at any time before the 1st day of May of the next year take possession of the colt or filly and sell same by public auction. From the proceeds of the sale, expenses and stallion fees to be taken and the balance remitted to the owner of colt or filly."

These are the recommendations for this year, and it is up to the stallion owners to say whether they want them or not. All the members of the Enrolment Board but one were present this morning at this meeting, and we are ready at any time to take suggestions or to meet any of the Directors or any selected bodies that may be appointed from this Association to discuss anything that may be of benefit to the horse industry of this Province.

MR. GURNEY: In regard to this section spoken of by Mr. Wade, I appeared before the Government this year asking for something along this line. It seems to me that a year is a long while for a man to have to wait for his money for services rendered. It has been held in the courts that an appeal is not legal unless you can prove that the man read the bill and thoroughly understood the contents. I would like to see the Enrolment Board of the Government establish a standard advertising bill so that it would be legal. Supposing a party disposes of his mare; we have it on our Bill that the money is then due, but it is held by the courts that we cannot collect.

MR. WADE: In connection with the question of having a standard bill, I took the matter up with the Attorney General's office and I asked them if it was an agreement, and they said yes. They said you go into a restaurant and pick up the bill of fare and give an order, and after you have eaten it you happen to notice that certain articles are about twice the price you thought they were going to be; you cannot avoid paying because you failed to read the menu card and list of prices.

MR. GURNEY: It does not work out in that way. I had a case inside of a month where a man disposed of his mare, and only by stepping into the selling ring and making a row were we able to get half our pay. Although the Attorney General's department may rule that way, the judges do not always sustain that ruling.

MR. SHEPPARD: I have listened with a great deal of interest to what Mr. Wade has said, and it seems to me that if a man has a contract and advertised it, that that contract would be binding on all concerned. I do not think there should be a lien on the colt, because that would lead to a great many hardships. The colt might pass through several hands and an innocent purchaser may be made to suffer. I think the third class in the Enrolment should be done away with, and a horse should not be allowed that is in that class; there should be just two classes.

MR. WADE: A. 1. has to be absolutely sound.

MR. SHEPPARD: Then the only other class that should be allowed should be a class that are not absolutely sound but where the unsoundness does not in any way affect them.

MR. GURNEY: Quite a percentage of the mares are brought to the stallion owner by mere boys; the owner does not come with the mare, but sends his boy and when you go around to collect the money, the owner will say,"I did not know that was on the bill; if I had known that I would not have bred to your horse."

MR. SOUTHERLAND: Why not have a written contract?

MR. GURNEY: I would like a ruling from this Board that a Standard Bill or an Individual Bill that the Stallion owner publishes, if it has been stamped by the Enrolment Board, should be legal whether the owner of the mare sees it or not.

MR. GARDHOUSE: I don't think under the law of the Province of Ontario it is necessary to have a bill in order to be able to collect.

MR. GURNEY: We all know men who breed their mares, and inside of two or three weeks sell them, and get a good price because they say that she is bred to such and such a horse. After the mare is sold she is taken miles and miles away, and it is impossible to collect.

The Ontario Cattle Breeders' Association

The Annual Meeting of this Association was held in the Hotel Carls-Rite, at 9.00 a.m., Friday, February 11th, 1921.

OFFICERS

President	John Gardhouse, Weston.
Vice-President	W. E. Thomson, Woodstock.
Secretary-Treasurer	R. W. Wade, Toronto.
Executive Committee	D. O. Bull, Brampton. John McKee, Norwich.

Directors

Aberdeen-Angus

James Bowman, Guelph.
G. C. Channon. Oakwood.

Hereford

L. O. Clifford, Oshawa.
H. D. Smith, Ancaster.

Jersey

D. O. Bull, Brampton.
H. A. Dolson, Cheltenham. No. 1.

Holstein

W. H. Cherry, Hagersville.
James Rettie, Norwich.
R. S. Stevenson, Ancaster.
C. S. Gooderham, Clarkson.
W. E. Thomson, Woodstock.
E. B. Purtelle, Bloomfield.
R. J. Kelly, Ingersoll.
A. J. Camplin, Unionville.
Fred W. Lee, Springford.

Shorthorn

F. W. Scott, Highgate.
James Douglas, Caledonia.
W. A. Wallace, Kars.
W. A. Dryden, Brooklin.
John Gardhouse, Weston.
Wm. Waldie, Stratford.
A. G. Farrow, Oakville.
George Gier, Waldemar.
R. R. Wheaton, Thorndale.

Representatives To Fair Boards

Canadian National Exhibition: John Gardhouse, Weston.
Central Canada Exhibition: W. E. Cummings, Ottawa.
Ontario Provincial Winter Fair: John Gardhouse, Weston; John Lowe, Elora; John McKee, Norwich; R. S. Stevenson, Ancaster.
Ottawa Winter Fair: E. S. Archibald, Ottawa; W. R. Reek, Ottawa; J. H. Grisdale, Ottawa; R. G. T. Hitchman, Ottawa.
Royal Agricultural Winter Fair: John Gardhouse, Weston; B. A. Bull, Brampton; John McKee, Norwich.
Western Fair, London: H. Lee, Highgate; Frank Silcox, Iona.
Eastern Canada Live Stock Union: John Gardhouse, Weston.
Representative to Improvement Committee: John Gardhouse. Weston.

FINANCIAL STATEMENT

Of the Ontario Cattle Breeders' Association, for the Year Ending December 31st, 1920.

Receipts

Cash on hand as per last report	$769 16
Legislative Grant, 1920	1000 00
Legislative Grant, 1920-1921	1500 00
Sale of cattle, Lafontaine	2477 50
Sale of Cattle, Sudbury	*2190 00
Freight Charges to Toronto, Sudbury Sale of Cattle	95 00
Sale of Cattle, Bull Exchange, Orangeville	1000 00
Sale of Bulls Used for Exhibit	64 70
Refund on Car	146 55
Total	$9242 91

EXPENDITURES

Directors' Expenses	$490 40
Interest charged	50
Office Help	25 00
Expenses of Annual Meeting	26 10
Eastern Canada Live Stock Union, Membership Fee	25 00
Auditor	2 00
Stationery	128 50
Brown Searle Company, Electros of Crests	12 12
Advertising	185 73
Exhibit, Canadian National Exhibition	9 90
Car Expenses	65 81
Gate Signs	416 46
Camera, Photographs, Etc.	339 60
Purchase of Cattle, Lafontaine	2477 50
Freight, Feed & Miscellaneous Expenses, Lafontaine	149 39
Auctioneer, Kemptville	20 00
Purchase of Cattle, Sudbury	*2155 00
Freight, Feed & Miscelaneous Expenses, Sudbury	120 82
Purchase of Cattle, Bull Exchange, Orangeville	1585 00
Refund on Sale of Cattle, Bull Exchange, Orangeville	30 00
Freight, Feed & Miscellaneous Expenses, Orangeville	136 23
Purchase of Bulls for Exhibit	66 85
Expenses re Purchase of Bulls for Exhibit	7 43
Cash on hand	767 57
	$9242 91

* 35.00 is to be refunded to D. J. Robicheau, Sudbury.

(Sgd.) JOHN GARDHOUSE,
President.

(Sgd.) R. W. WADE,
Treasurer.

PRESIDENT'S ADDRESS

JOHN GARDHOUSE, WESTON

I am sure that I am rather pleased this morning to see as many of the cattle men here as we have present after the very heavy week's work that most of you have been having with the different meetings that have been carried on during this week. Many of you have been away from home since early in the week, some of you since Monday morning, and I am sure that by the time it gets down to Friday most of you are feeling like returning home, where you know there is very likely considerable work awaiting you.

However, we are very pleased to note that there has been so many of you able to remain over and show your sympathy and interest in the cattle industry of the Province of Ontario. We believe that at this time, while the cattle industry is not as bright, as far as prices are concerned, as it has been for the last few years, there is no line of business that, even at the present time, men could be engaged in which is very much better—perhaps not many of them quite so good. We know that during the war prices for all kinds of cattle and all cattle products of every kind, meat, milk, butter, cheese and everything, were in great demand and at good prices, and we know that, even at the present time, while the prices are not nearly so good as they were, other things have been coming down as well as cattle—some of them have come down even much more. My own candid opinion is that at the present time it is not a good time to sell, but it is a good time to buy, if you are in a position to carry more cattle; because, after all, cattle are the foundation of all good agriculture and without a good herd of cattle on the average farm of this country.

there is not going to be on that farm what, in my humble opinion anyway, should be on it. Now that labor is getting somewhat cheaper and more easily got than it was during the war, there may be a great stimulus noted in the dairy business, because the dairymen will have an opportunity perhaps of procuring better labor at a lower cost than they were able to get during the war period. They claim there are great many unemployed now and I am sure we have a lot of dairy, and beef farms too, that could use some of that labor very well if they would be good enough to go out and perform that labor reasonably and rightly.

There is one thing that I would like to say to the cattle men: Do not feel afraid of the cattle market being overstocked for probably many years to come, because you cannot get into good cattle in a day or two. I don't need to tell you men that because you all know it too well. I think there are a great many cattle men who are afraid of times getting even worse, and they are putting many cattle on the market that really should not be going to the market at all. It has been stated for the last few years all over that there is a shortage of meat producing animals, and in the dairy producing stock as well. Dairymen will know that rather better than I. I think it is a good time to keep your cattle. I think it is a very good time to get into a better class of cattle. You know that during the war any old animal at all would sell, and sell for a good deal of money because even if they were not very much use for making beef, the hide itself was worth a good deal of money at one time. Now things have changed, and we don't want that class of cattle, and there isn't the need for it. The statement has been made by those who have the knowledge and are capable of making the statement, that at the present time, or in time gone by, of the number of cattle that has been going through the stock yard, there were not more than ten per cent. of them that were suitable for export trade. Now, I cannot quite understand why that should be, and if that is the case with the beef breeds of cattle, I suppose I am quite safe in saying, only we have not the same way of placing it, that it is also the case with the dairy breeds of cattle. It does appear to me that even in dairy breeds it is more important to have a really high standard animal than it is in the beef breeds, because there is much more labor in the handling of the milking cattle and in the handling of the milk product and so on, and the overhead charges are more that way; so that it is important to have a very high standard in the dairy cattle also. Now, therefore, would be a very opportune time to try to increase the quality of the cattle as well as the numbers, as far as you are in a position to do so. It is also important from another point of view, because it is very little use for us to produce animals unless we have a market, and the best way to get a market is to produce the very best article that can be produced. I cannot for the life of me see why it would not be as easy to have say ninety per cent. of the cattle going through the stockyard fit for export and ten per cent. of rejects, rather than ninety per cent. of the inferior class and ten per cent. fit for export, because, after all, it does not require any more feed to feed a good animal than a poor one. It only requires one stall in your stable, to house an animal, and it does not take you any longer to feed him, clean him out or water him, the only difference as a whole between a really good animal and the poor one is the additional cost originally. Farmers in this country happen to see that first little additional cost, and in my opinion, it is only for the want of thinking it out for themselves rather than the difference in the price of getting something that is worth while that influences them.

We should try to increase both the numbers of cattle and the quality. I am not going to say that for the average farmer it is necessary to have pure-bred stock, but I am going to say it is important that we have herds of good, strong, healthy, robust animals of whatever breeds we like best, that is, good strong useful grade of cattle on the average farm, and those cattle should be matched with a pure-bred bull that is not only pure-bred but a good individual that will prove himself a good prepotent sire. Along that line, as you know, the Cattle Breeders, with the Live Stock Branch and the assistance of the Departments of Agriculture, both for Ontario and the Dominion, are working, and I am glad to know that we have Mr. Arkell, the Live Stock Commissioner, with us and we are going to hear from him a little later on. We have been having, as you know, quite a campaign since the last meeting. I may say there has been a great deal of exceptionally hard work done. It is necessary, of course, to sow the seed and do a good deal of missionary work before you can reap the harvest, and while there has been, as far as I have been able to judge, a considerable harvest reaped, and a very great deal of ground cultivated, some of it, to my mind, exceptionally well cultivated, perhaps some not done quite so well because it is impossible in the short time during the last year since the work commenced to cover all the province. Now we will have in the reports a little later on very largely what has been done, so that I will not take up your time just now in explaining that to you.

I said a moment ago that it is important to have markets, and I am glad to note that both our Federal Government and the Provincial Government are going to do everything they reasonably can do to get those markets, and if we put the product on the market that I described a while ago I think we will be able to develope a very, very good market. The Hon. Duncan Marshall recently made the statement that in the Province of Alberta they had a contract for steers for May delivery at from 10 to 12 cents a pound; so if steers there can be contracted for that figure for May delivery, it looks as though there may be a fairly good future for cattle yet. There has been a movement on the part of the Governments, as you know, to try to have the embargo moved from our Canadian cattle, and I trust and hope that that may be successful, because it is stated that fresh killed meat in the old country is worth very, very much more than the frozen meat. So that you can see it is important to have the right type of animal so that it would do for export, and then get that market, and in that way we will have a good trade in this country; because, after all, we have got to produce these cattle on the farm if we are going to keep up the fertility of our soil. As I said before, live stock is the foundation of all good agriculture, and I have said to some of the boys when I have been up to some of the short courses that my idea was to keep as many good cattle on your farm as you could so that you might be able to make more manure to go back onto your land to make more feed to feed more live stock, to make more manure to grow more feed: and you turn it around and around and you are feeding your cattle and you are feeding your land and you are feeding your pocket when you turn your cattle away, and I think we want, as far as possible, to instil this into the minds of the young men of our country.

At this stage, I might mention the matter of transportation. If there is any one question more than another that interests the live stock men of Canada to-day it is the matter of transportation. Situated as we are here with the long distances between the different provinces, from Halifax out to Victoria, unless you can get fairly cheap transportation, it simply means that you cannot transport very many animals which otherwise would be transported. I know that I hardly need to tell you gentlemen about this question of transportation, because you all know as well as I do that it has stood in the way of making many sales by keeping animals from being placed where they could be sold if they could be transported there at a reasonable cost. I am glad to know—as you have heard from the Minister and other gentlemen, both from the Dominion and Provincial Governments—that the matter is being taken up very keenly, and I might say that the live stock men have had several meetings and have put up a strong campaign and are working on it now and perhaps later on something will be done. I think it will be, because it is not only in the interests of the cattle men but of the railways as well as they will get a great deal more to do.

GENERAL BUSINESS

The Secretary then read the correspondence.

THE PRESIDENT: You have heard the correspondence read by the Secretary. The other correspondence is very largely along the line he has stated, from commission men and others pointing out the advantages of good stock, so there is no need to take up your time now unless there is something you wish to go into in regard to it.

The first one was a letter drawing the attention of the meeting to the proposal of the Hon. Mr. Doherty, Minister of Agriculture, asking that a live stock committee be appointed in order to further advance the cattle industry. What is your pleasure in connection with that?

MR. LEE: I would move that we as the Cattle Breeders' Association, approve the adoption of the principle of the Dairy Standards' Act. The motion was seconded by Mr. R. S. Stevenson and on a vote being taken, was declared carried.

THE PRESIDENT: After discussion, it was moved by MR. BRIEN and seconded by MR. LEE that: "The Ontario Cattle Breeders' Association, recognizing the importance of Association sales of purebred livestock throughout the province, desire to place themselves on record as being greatly appreciative of the financial aid given by the Ontario Department of Agriculture, and if a Sale Association desires to make application for an inspector, such inspector would be furnished by the Department." The motion was declared carried.

Moved by MR. BOWMAN, seconded by MR. KELLY, "That it be suggested Clause 4 in the Act be stricken out, that is, making the Better Bull Act effective all over the Province of Ontario." On a vote being taken this motion was declared carried.

Moved by MR. LEE, seconded by MR. REEDEN, "That a resolution be passed drawing the attention of the bankers of the Province to the importance of the breeding of good cattle, and asking their co-operation in the matter." On a vote being taken the motion was declared carried.

BETTER BULL CAMPAIGN IN DUFFERIN

H. A. Dorrance, Orangeville

In connection with the work of the Better Bull Campaign in Dufferin County for the past year, I might say this that in looking into the situation so far as we found it in our County, I found that possibly we could arrive at the ultimate end of the work that we wanted to carry on, possibly from approaching this situation from a little different angle than the question entirely of the Better Bull Campaign. We found out very soon that there were a number of small herds in the County of Dufferin from which quite a number of the bulls used locally were secured, and it occurred to us that one of the things that we could do to improve the situation was to get those men to use considerably better bulls themselves, and to improve the kind of females that they were keeping in their herds. We visited quite a number of those men, and I don't know whether we happened to be particularly fortunate or not in that three at least of those men found it necessary to purchase new bulls this year. We were able to secure outstanding individuals for those men so far as sires were concerned, and we have placed in those herds a considerable number of females from which we hope to secure some better bulls before very long. We followed up the situation, and secured the names of as many men as we could who were likely to need bulls this year, and by holding a number of meetings got in touch with quite a number of men. Our policy has been that as soon as we located what looked like a reasonable prospect and had him in the right frame of mind, we would suggest to him that if he were ready to go, we were ready to-morrow morning or any day that suited him to select the bull; and in the meantime we had kept ourselves posted as to where a supply of bulls could be located, so that immediately we started off with him we knew about where we were going to take him. We have made a number of trips, and I think in practically every case we were able to make a purchase of some kind. We then found that that was taking up rather too much time, and we conceived the idea of carrying on a bull exchange (as we called it for want of a better name), and we arranged with the Executive of the Ontario Cattle Breeders' Association to carry a number of bulls at Orangeville. We purchased eight bulls and had another one consigned, and sold those bulls, seven of them going into Dufferin County, one into one of the neighboring townships of Wellington and one into the neighboring township of Caledon, which is close to Orangeville. In addition to that in order to find out what was going on, we sent out to the men who were in the County that we knew had bulls to sell asking them how many bulls they sold in the County during the year and we found they report this, that during last year some fifty odd men of the County of Dufferin changed bulls. I know that this is not all, but this is all we have been able to locate, and something over thirty of those men either didn't have bulls at all or had scrub bulls, and the balance of them were men who had used pure-breds before he had made a change, and in the majority of cases, we are pleased to say that they have purchased better animals than they had before. So far as I can see, the situation is a harder one to face at the present time than possibly we have had to meet yet. Certain things have developed during the months of November and December, and up to the present, that are making the situation much more difficult, and it is chiefly that on account of the fact that the price of live cattle has dropped very considerably and the prices that are being asked for bulls to-day, so far as I can see is not very much lower than it has been before. I have within the past two weeks had three occasions on which I believed I had a fair way to making some purchases, but when it came down to the question of considering what return they received from the animals they had and what they would have to pay to purchase an animal. I believe that we are going to lose some of those. Now those are some of the things that we have to face, and the letter that was read here this morning happens to come from my County, and I know that the feeling among a great many of the men who own pure-bred bulls there is that they would like to see some action taken whereby they would be protected. Now we have a case in point which possibly illustrates it. I sold a young man last year a good Shorthorn bull. He paid a good price for him, and he didn't care to use him at ordinary fees on grade cows, so he said to the men in his community that if they were not satisfied to pay the price that he had to have for this good bull, if they would guarantee him so many cows he would go out and buy another bull for that purpose. I am ready to give in the neighborhood of $300 for a Shorthorn bull for that purpose, but what do I find? On the second farm to me there is a grade bull which so far we have not been able to get the owner to dispose of. That man is running that bull at $3, and they will not patronize this good bull which is in the locality, and the proposition is put up to me many times asking me what is the use of bringing a good bull into a community when we get no support? It seems to me that something should be considered, and that as early as possible something along the lines of the Stallion Act be done to give help to these men who have possibly not enough cows of their own, when they can get no support in the community. As far as advertising is concerned we have laid the foundation for better prospects after market conditions change, so that during this year we will be able to place a very large number of purebred bulls. I am pleased to say that so far as propaganda is concerned, there are quite a number of the owners of scrub bulls who are gradually slipping them out, and saying nothing about it, because a great many of them are under the impression that it is against the law to keep them and are very gradually moving them out. I thank you. (Applause.)

BETTER BULL CAMPAIGN IN OXFORD

W. E. Thompson, Woodstock

We are only just in our organization state in Oxford. We called our first meeting about Christmas time, and we have not decided on anything definite. To-morrow is the final meeting of our whole Board of Directors and we purpose to submit our plans, proposed constitution and by-laws and so on, before the Directors for their consideration. After to-morrow's meeting, I would be in a far better position to tell you just how we intend to go about this work, but I might just say that in the outset, that in the starting of this campaign Mr. Wade, Mr. Lee and myself on the evening of the December Sale got together in the District Representative's Office, along with Mr. Green, and we considered ways and means whereby we could take this matter up and arrive at some effective way of bringing results. As a consequence, it was suggested that I write a number of letters, and that we ask two out of every township in the County to represent that township, and Mr. Green, our secretary, sent out the letters to these different parties, and we had a meeting and organized. We then appointed an Executive, and at that first meeting a number of breeders volunteered to contribute a calf six months or over in exchange for a grade sire, regardless of his price. We decided to take the matter up at the Oxford Holstein Breeders' Annual meeting last week, but unfortunately I could not be present as I was detained here on other business. However, Mr. Green, our Secretary and District Representative, took the matter up at the meeting, and I might say that the proposal met with very hearty co-operation. To show you the co-operation that we had in the plans that we had suggested or arrived at, and will be finally settled to-morrow, twenty of the breeders in attendance there volunteered so fast, that the Secretary could not write the names as fast as they offered. I might just say too that in talking to a number of the breeders of other breeds, they have also signified their willingness to do the same. Now this looks like a very workable proposition to us. The only question in my mind seems to be how are the men going to co-operate from the other side. Are we going to get enough applications to take up the bulls that are offered?

Another thing is that we are getting up a Calf Club along with it. We have young boys from ten years and upwards who applied for a heifer, that is around two years or over nearing freshening. There has been a committee appointed to purchase these heifers for boys who can show sufficient interest to take care of these heifers. They must take care of the heifer in person, and the parents are asked to see that sufficient feed is provided to feed the animal. The bank manager has volunteered to loan the money at a reasonable rate of interest, and it would be paid by the parent or by the applicant at the time. It must be paid from the earnings from this heifer, from the proceeds of the milking and otherwise, and the boy is requested to keep an accurate account of his expenses and receipts and hand it back to the bank manager and from the profits, the difference between the expenses and the receipts, the bank manager will accept the payments.

MARKET PROBLEMS

H. S. Arkell, Live Stock Commissioner, Ottawa

I would sooner listen to a real live discussion at any time than make a speech, and I want to say that I do not know where I have felt so much at home in a meeting composed of breeders as I have here this morning. Now the reason of that is the discussion is clearly constructive, having in mind the actual practical problems of the country. It appears to me that this discussion has more in it than simply a question of selling pure-bred bulls or simply of replacing scrub bulls with pure-breds. If one could gather from the tone and spirit of the discussion, there is a recognition of the real practical business problems of the ordinary farmer, and it is clear that the pure-bred men are prepared to set themselves behind the farmers and help them through definite co-operation on their part. I doubt if there can be any saner and more business-like policy than this.

There are numerous angles from which the question could be tackled, but it may be of interest to indicate very concisely something of the practical market problems that underlie the basis of your work. They may be of some interest. I will try in a few words to indicate the general situation as it concerns the Province and the country at the present time. Take for instance, first of all, the beef situation. The country is definitely concerned at the moment as regards the future of the market of our beef cattle. The problem is one of selling various grades of beef cattle. It may be of interest that so far as the export problem is concerned, it narrows down to finding a market for the surplus, which, after all is constituted by the heavy cattle of the country. It must be recognized that Canada does not absorb our heaviest cattle. They have hitherto been going to the United States, and if any tariff should be imposed which would make it difficult for us to get them to the United States market, we shall find ourselves confronted with the securing of a market for the heavy beef cattle which are produced in the feeding areas of Ontario, certain counties of which you have been speaking of this morning, the ranching areas of Western Canada, including Southwestern Alberta and other districts where beef cattle now predominate. Those cattle, as I say, weighing from 1100 to 1300 pounds, are not absorbed freely in this country. For that reason, it is essential that we should do everything in our power to find an outlet for that class of cattle, for the reason that the prosperity of the areas to which I have referred is dependent on a lucrative sale of our heavy cattle. Now it would take too long to go into the question of the sale of our heavy cattle. Hitherto, as I have indicated, most of those have been going to the United States—to the Buffalo, to the St. Paul and to the Chicago markets. I might explain, however, that already steps have been taken to provide for an outlet overseas, and this brings up the question of the embargo to which I am not going to refer at length.

In January, 1892, the ports were closed and representations were made and have been continued since until practically all British ports for Canada have been opened after commercial arrangement have been made, and at the present time only one port is closed for that purpose, and action by Associations centred in London is going forward at the present time for the opening of that. You will see that even if the embargo is not lifted as against the introduction of feeding cattle, we shall have a market, and from information I have received recently, within the last two weeks, it is expected that cattle for immediate sale at British ports will go forward so soon as spring navigation opens.

I might refer at length to negotiations they have had since 1919 for the marketing of feeding cattle, which would be a much more difficult matter, but it would be too long to go into at the present time. We are in touch with important organizations in the old country which are working to this end at the present time. and the meeting which is being held on March 9th next, being convened by the Corporation of London, is a direct result of representations made at a conference which I addressed at the Cattle Markets Committee of the City of London in 1919. It was then decided when the proper moment arrived some months hence, to convene such a conference in order that they might make a definite representation to the British Government. You will understand in addition to the heavy cattle there is the market for the ordinary cattle that come from the country, that largely makes up our domestic trade, and you will understand that this domestic market does not take cattle of these weights, but takes handy butchers' steers and heifers weighing anything from say 800 to 1050 pounds. It will be to the advantage of the whole country to settle itself to a definite understanding of the requirements of our local markets, because, after all, eighty per cent. is absorbed in our home trade. This is a feature that should be considered carefully by the breeders and developed as a definite policy in connection with the settling of our home market. In addition to that, we have the services from our dairy industry. It has been indicated time and again at the discussions during the week that dairying was likely to increase as a definite industrial feature of our live stock industry, and you will observe that the surplus from our dairy industry is a real problem so far as its absorption in our local markets is concerned. It has to do not only with the absorption of dairy products but with the absorption of cattle of dairy descriptions. At the present time, the real difficulty at the market exists in view of the amount of cattle going forward with dairy blood in their veins. My own view in that regard is this, that we should make a definite objective with a view of finding a market for our veal from the dairy parts of the country, increasing the absorption of veal. a class of food that can be made very, very inviting indeed if it is only handled in the proper way At the present time, the veal trade is not satisfactory owing to the class of veal being marketed. The surplus of the dairy industry should not go forward as steers, bulls or heifers, but largely and increasingly so in the form of veal, as is the case in Holland and also Britain, where the product veal is one of the most attractive and inviting articles of the menu cards of those countries. I suggest that that can be done to excellent advantage in Quebec. Eastern Ontario and even sections in Western Canada. The problem in which you are more particularly interested is the supply of bulls to meet this demand. I would like to add that the demand will come for the improvement of dairying itself, and I took the opportunity yesterday of saying to the Holstein-Friesian Association that their problem was not only the production of cows of high breeding and producing quality, but to settle themselves the problem of the selection of high class bulls of introducing them into the grade dairy herds of the country with a view to bringing up the level of the production of the country in connection with the dairy industry. This is a real task to which the breeders of pure-bred dairy cattle can assign themselves in future. It looks like four lines of work that should be definitely borne in mind in the cattle policy. I do not want to speak too long, but I would like to say this at the conclusion, we are facing adjustment, readjustment, commercial, industrial, on the farms. It is very clear that, with the reduction in the price for commercial cattle, with the reduction in the price of various products of the farm, that the purebred industry itself must find its level in relation to that readjusting. Quality is going to count as never before. Economy of production is a feature to which we must give absolute and direct attention.

After the breeders of pure-bred cattle are settled themselves as to their description of this policy, it will be to their interest and advantage to see that nothing but high-class bulls are sold. It will be worth while. I think, at the present time, now that the market for commercial bulls is being developed, to eliminate by sale direct to the butcher even pure-bred males that are not up to standard, and I suggest this as part of your policy. Then you can face the whole country without any fear of objection to your breed, with a class of bulls which you can recommend either for beef or dairy breeding and know you are furnishing an article that is worth the price. I want to emphasize that that question of policy is a feature in lowering the cost of production, and as helping to determine the policy of the breeders represented here this morning representing their various associations.

May I close by mentioning a matter that may not be exactly popular: I want to suggest this further in support of what Mr. Dorrance has already said, not only as to the question of quality but of price. One of the best ways to get a fair price for your bulls is to do what I have already indicated—market those that are not up to standard, and then I think you can justify a fair price when you offer a really good animal. But I would like to add that, in addition, when there is re-adjusting of values down, you be prepared to meet that situation, and I am satisfied you will establish very good faith with the people and farmers of the country if you are prepared to accept a price that will be adjusted as compared with the economic situation of the country. I may say that Mr. Hamer and myself will have to discuss the policy with a view to our purchases in the coming spring months. I am taking this view, so that if we have to grade our prices down, you will not be surprised when you come to the market.

I want to congratulate you on what has been done during the past year, and on the practical turn that has been given to the work of the discussion. The attendance at the meeting this morning and the action taken is the best indication of what interest is being felt.

I want to add my tribute to the services of Mr. Wade during the past months. I do not know anyone who gave more enthusiastic or diligent support to the December meeting than he, and I think he is due the thanks of the Association for the work he has done during the past year.

The Canadian Swine Breeders' Association

The Annual Meeting of the Canadian Swine Breeders' Association was held in the Carls-Rite Hotel, Toronto, at 8 p.m., on Monday, February 7th, 1921.

The President, Mr. J. F. Roach occupied the chair.

The minutes of the last Annual Meeting were read and adopted and the financial statement, as presented by the Secretary, was accepted.

OFFICERS

President	W. H. English, Harding, Man.
Vice-President	M. Ste. Marie, Compton, Que.
Secretary-Treasurer	J. E. Rettie, Toronto.
Executive Committee	W. H. English, Harding, Ma. M. Ste. Marie, Compton, Que. Geo. A. Dewar, Wyoming, Ont. J. E. Brethour, Burford, Ont. J. E. Rettie, Toronto.

Directors

J. E. Brethour, Burford, Ont.
W. J. Hoover, Bittern Lake, Alta.
Albert G. Marshall, South Westminster, B C.
W. H. English, Harding, Man.
P. J. McEwen, Wyoming, Ont.
J. F. Roach, Sussex, N.B.
Frank Byrne, Charlesbourg, Que.
M. Ste. Marie, Compton, Que.
Philip Leech, Baring, Sask.
Geo. A. Dewar, Wyoming, Ont.

Representatives to Record Board

W. J. Hoover, Bittern Lake, Alta.
Philip Leech, Baring, Sask.
J. F. Roach, Sussex, N.B.
W. H. English, Harding, Man.
P. J. McEwen, Wyoming, Ont.
Sam Dolson, Norval Sta., Ont.
J. E. Brethour, Burford, Ont.

Representative Eastern Canada Live Stock Union: J. E. Brethour, Burford, Ont.
Representative Western Canada Live Stock Union: W. C. McKillican, Brandon, Man.
Representatives Royal Agricultural Winter Fair: W. H. English, Harding, Man.; S. Dolson, Norval Sta., Ont.; Wm. Jones, Mt. Elgin, Ont.
Representative Central Canada Exhibition: M. Ste. Marie, Compton, Que., J. C. Stuart, Osgoode Sta., Ont., W. McCullough, Ottawa, Ont.

FINANCIAL STATEMENT

OF THE CANADIAN SWINE BREEDERS' ASSOCIATION, FOR THE YEAR ENDING DECEMBER 31ST, 1920.

Receipts

Cash on hand as per last report	$2042 69	
Registrations	13449 19	
Memberships	3574 00	
Interest	50 85	
Total		$19,116 73

Expenditures

Directors' Expenses	$1293 20
Postage	60 00
Grants:—	
Ontario Swine Breeders' Association	451 00
Saskatchewan Swine Breeders' Association	315 00
Maritime Stock Breeders' Association	56 00
Alberta Swine Breeders' Association	121 00
Alberta Provincial Swine Breeders' Association	121 00

Quebec Swine Breeders' Association	357 00	
Manitoba Swine Breeders' Association	202 00	
Record Office, for Salaries, 1920	5400 00	
Record Office, balance due on expenses, 1919	520 56	
Hotel Carls-Rite, Rental of Room	10 00	
Auditor	5 00	
Reporter at Annal Meeting	24 80	
Membership fees for Eastern and Western Canada Live Stock Union	25 00	
Printing Records	6261 75	
Printing Notices and Ballots	104 10	
Miscellaneous	7 00	
Cash on hand	3782 32	
Total		$19,116 73

J. F. Roach,
President.

J. E. Rettie,
Treasurer.

REVIEW OF SWINE CONDITIONS DURING THE YEAR

S. E. Todd, Industrial and Development Council of Canadian Meat Packers

It always gives me great pleasure to talk to Swine Breeders. You have asked me to give you a Review of Conditions for the past year. Last year opened up with a restriction on the hog business imposed by the Board of Commerce. At that time the price of pork products was fixed without relation to the export price, it was fixed at a time when the export price was varying, and it was fixed on the basis of the domestic price in September and November, 1919. As the export price changed, the order eventually broke down of its own weight; it was demonstrated in the course of time that a business which was very largely controlled by the export market could not be handled by a Board fixing the domestic price.

The past year has been to the meat packers perhaps one of the most disastrous in the history of the business. I do not think I am stating any secrets when I make that statement. It has been disastrous throughout the whole operation of the year.

Your markets for hogs have been controlled by two things: first, the order of the Board of Commerce fixing the domestic market, and the British Ministry of Food regulating the export market throughout the year. During the first part of the year, the Board of Commerce order had a certain effect, but that disappeared, and then the British Ministry of Food set the price and they continued to do so. As they control the export market, they have been able to effectually control prices. Therefore, your markets have depended on a Board operating overseas that is not familiar with the conditions under which you as Canadians have been producing hogs, and which is sometimes not altogether familiar with the conditions under which the packers handle the product. At times this works rather seriously to the disadvantage of the Canadian Swine Breeder.

The packer has had this problem to deal with all the time. The British Ministry of Food has been his customer, and one has at all times to deal with one's customer in as friendly a manner as possible, and it has been the endeavour of the packer to preserve the market in so far as it has been possible to do so, for the Canadian Swine Breeder, doing that, first of all, in order to maintain his business as a packer, and as a corollary, retaining the market for the Canadian hog producer —and it has been no easy proposition.

The price of feeds advanced last winter very rapidly, but the price of pork products did not advance in the same ratio. Sometimes when the packer endeavoured to explain his position, he was more or less misunderstood.

In order that we may get some idea of the situation to-day as compared with before the war—because that is really what we have to face now—perhaps it would be well to just look over the prices that have been paid for hogs during the last few years. The fed and watered price of hogs at Toronto for 1914 was $8.29; that was the average for that year. In 1915, it was $8.47; 1916, $10.54; 1917, $15.35; 1918, $18.15; 1919, $18.71; 1920, $19.21. Those are the prices that were paid for hogs since 1914 inclusive. I am going to give you along side of that something which may be a little more controversial because we have not official data for the figures, but I have tried to put together prices that have been obtained for oats, barley, American No. 3 corn, bran and shorts for these years. The average price of these five grains per cwt. on the Toronto market in carload lots was, in 1914, $1.35; 1915, $1.50; 1916, $1.48; 1917, $2.21; 1918, $2.28; 1919, $2.55; 1920, $2.75. So that while you have had a very heavy advance in the price of hogs, you have also had a very heavy but not quite equal advance in the price of feeds. Taking 1914 in each case as 100%, the advance in the price of hogs has been 231.7%, and the advance in the price of grain 204%. That is, between 1914 and 1920. If my basis of figuring is correct, between 1916 and 1917, the price of hogs was 127% of 1914, and in 1917 188% of 1914; the price of grains in 1916 was 110%, and in 1917, 164%. There was a very big advance in the price of hogs in 1916 and 1917. While you have had a big drop in the last three or four months in the price of grains and the price of hogs, you had in the years 1916 and 1917, an advance in hogs that was out of proportion to the advance in the price of grain.

It has been borne in upon the packer this last year that the Canadian Hog Industry most be taken in a cycle of five years or else we will never be able to build up our market for the hog products. If you take a cycle of five years, you can judge whether hog production pays or not. If we are going to judge the market by one year, I do not see how we are going to build up a profitable market.

One of the great difficulties of the packer is to be in a position to study the business from the standpoint of the farmer. I am an experienced practical farmer; and when I came into the packer's end of the work I started to study this matter from the farmers' viewpoint. One of the things I have learned is that the packer has got to find a market for the product that will handle a certain specified quantity from year to year, and if he can then go back and find the raw material, he is in a position to go ahead and expand his business. One of the big difficulties during the past years has been the fluctuation in production. There have been a great many ups and downs. The hog business has been conducted largely in plunges. We went in heavily and then went out as quickly as we went in, when we should have stuck with the game steadily, because it is only by steadily building up the business that we will be able to retain the market; if we jump back and forth we will lose the market. By the time the packer had built up a profitable market and had secured an outlet for a large production, something had happened in the production end, and the packer was unable to supply the market which had been created. This is an evidence of the lack of co-operation and understanding between the packing business and the producers of hogs, and it is also conclusive evidence that there are two halves to the swine business: one half is the production and the other half the manufacturing and marketing, and neither half can succeed unless it works with the other half.

We have been asked why if the British Ministry of Food buys Canadian bacon or Wiltshire sides at 27c a pound F.A.S., i.e , alongside the ship, should the Canadian consumer be paying 60c and 70c a pound for bacon? That attack has been made on the packers. Let me say something to you about the price of fancy cuts. The average live hog weighs 184 pounds. Every one knows that the fancy cut is the back bacon.Of the back bacon in a live hog there is only an average of 29½ pounds, including rind and trimmings; the shrink and the trim of the rind and fat which is sliced off, plus the loss in smoking, (which is more than is gained in the pickle,) is 13.12 pounds, so that the back bacon for sale from that 184 pound hog is 16.38 pounds. You can see at once why there is a difference between the price of the Wiltshire and the fancy back bacon cuts.

From a hog of 184 pounds, there is produced 136.65 pounds of dead products; the waste is 47.34 pounds; that waste is not recovered in any form. That is so much of the hog gone. Then the cutting and the offal at the time of killing makes 29.34 pounds, that is, lard, grease, fertilizer and bones which do not go into the Wiltshire sides.

I remember asking a District Representative what a Wiltshire side was, and he was not able to give me a correct description, but that is not at all characteristic of Agricultural Representatives. The Wiltshire side is half a hog with the head, the backbone and the knuckles removed. This is put into a mild pickle. When it is taken out of the pickle, it is given a certain amount of further preparation in order that it shall be in condition to ship. It is then shipped over to the Old Country, and there it is cut and smoked. You will see at once that when comparing the article we call export bacon, is the Wiltshire side, including shoulders, back bacon, side bacon and ham, and the article we call bacon here—the fancy back bacon I spoke about, and the side and breakfast bacon cut is all that we call bacon—there is a great difference between a Wiltshire side and domestic bacon.

When you cut a Wiltshire side up so as to make back bacon, side bacon, shoulder and ham, you again remove 22.34 pounds of product. That is spare ribs and trimmings off the sides, because the sides must be cut square and the shoulders trimmed in order to make rolled and boned shoulder, so that there is a total product from the hog that does not go into the hams, shoulders and bacon of 51.68 pounds.

The average hog produces 25.66 pounds of ham; 23.61 pounds of rolled and boned shoulder; of back bacon 16.38 pounds, and of sides or breakfast bacon 19.31 pounds, and 51.68 lbs. of other products, or 136.65 pounds altogether from that 184 pound hog.

I just wanted to give you these figures so that we will not again have to face this criticism about the difference in the price of bacon here and of Wiltshire sides overseas.

Here is a report of the Bureau of Statistics giving us the latest figures for 1918 for 78 packing plants in Canada. The fresh pork killed and handled by these packing plants was 61,694,000 pounds, valued at $15,528,000, or in other words, the packing plant got 25c a pound. The average price received for smoked shoulders, hams and bacon was 30.7c per lb.

Last year the Ministry of Food tied up Canadian bacon to the American product, and that obtained from November 1919 until April of 1920. The Ministry of Food said they would take the price of hogs as it was in the Chicago market and add to that so much, regardless of what the Canadian price was, and they would call that the price of hogs in Canada, and they would pay for Canadian bacon on that basis. To show you what that means, I will give you the prices of Canadian hogs on the Chicago basis. The British Ministry began by paying 1c a lb. in addition to the Chicago price, and when the Chicago price on Nov. 24th was $15.75 a cwt. they said the Canadian price would be taken as $16.75. The Toronto fed and watered price at that time was $16.75; on November 30th, however, the price allowed was $16.25, and the Toronto market price was $16.50. The week of December 6th, the price allowed by the British Ministry was $15.11, and the Toronto market price $16.50. The next price was $14.12 against a Toronto price of $16.25, and the next week it was $15.05, against the Toronto price of $17.00; then $16.25, against $18.25; $16.66 against $17.75; $16.75 against $17.75; $17.20 against $18.25; $17.30 against $19; $16.68 against $19.50; $16.93 against $18.50; $16.42 against $19.25. Thus there was a spread at times of nearly 3c a pound between the basis on which the British Ministry of Food paid for Wiltshire and the price actually paid by the Canadian packers on the Toronto market.

Now, then, as to the price that was received for the bacon—the Wiltshire Side. The average for November was $30.72 per cwt.; it got down in the middle of December to as low as $26.68; it then went up to $31.44 and $31.56, and ranged along between $30 and $31 until March, when it went to $32 and $33, and in May it was up to $33. Then the basis changed and in place of our product being hitched up to the American article, the price paid was 35, 35, 34, 30 cents per lb, and down to 27 cents for December. The latest proposal made by the Ministry may mean that we will not get the 27c. I have tried to tell you what has happened during the past year with the Ministry of Food as the buyer of Canadian products. I have not said much about what has happened to your end of the business, but I know there has been a considerable falling off in production and that you have had a very serious decrease in your business as swine breeders, especially the pure-bred breeders. and there has been a very serious decrease in the number of hogs that have come on the market.

It seems to me that the business of producing hogs and marketing hog products is very closely linked together, and a complete understanding between the producer of hogs on one side and the manufacturer of pork products on the other is absolutely essential to continued growth of the swine industry in Canada. That is fundamental. and upon that depends the extent to which we will be in a position to go ahead and succeed. Therefore I always welcome an opportunity of meeting the Canadian Swine Breeders or anyone engaged in this business so that I can state as frankly as possible just what the packer has to deal with at his end of the business, realizing at the same time that you have your troubles and your difficulties, but also believing that if we can get together and understand each other's problems the Canadian bacon business will be put on a sound basis.

I would be glad to answer any questions that you may desire to ask me. We are looking forward in the very near future to the British market being again open on the natural trade basis, and our packers believe that the market for Canadian bacon is fundamentally sound. It may have suffered great disadvantage for the last couple of years, but although a certain amount has been lost due to difficulties that have had to be met, the future of the Canadian swine industry is as sound as ever it was. I thank you.

THE HOG SITUATION

H. S. Arkell, Live Stock Commissioner, Ottawa.

There are one or two ideas I should like to leave with the members of the Swine Breeders' Association tonight. The real point at issue at the present time for men engaged in breeding hogs, whether it be the breeding of pure bred or the breeding of commercial hogs, is this: What is to be the future of the hog business? Can the hog raiser, pure-bred or commercial man, face the future with confidence? Can he steadily and consistently continue to invest his money in breeding stock and feeding hogs? In other words: Is the farmer throughout Canada justified in breeding hogs as part of his farming business? I am not going to try to answer that question, but I want you to consider it in this way: The Department of Agriculture only once during recent years has had the courage to face the hog raisers of Canada on the basis of a production campaign. That position was justified by war emergencies. I think you will all agree that the Department, not only the Federal, but the Provincial Government, who were associated in the campaign, were justified in approaching the hog raisers on the basis of increased production, because it was an emergency so far as the food supply was concerned, and from a purely commercial point of view, the results of that campaign raised the export value of our bacon products from something like $5,000,000 to something like $48,000,000 within a very few years.

That action was taken not on the recommendation of one Department or another Department, or one Government or another Government, but from all the Provinces of Canada an invitation was sent to join in a conference as to how the undertaking could be brought about, and the hog raisers themselves accepted a definite responsibility. Had it not been for that fact, the campaign never would have succeeded.

The situation in our judgment at the present time is very much the same. I do not believe any Government is justified in asking the hog raisers of Canada to undertake a definite hog production campaign. I think it would be a very courageous man who would face the situation in Canada at the present time and urge that position; but I would like to make this suggestion to you: Unquestionably there is wealth in hogs, wealth for the individual farmer, wealth for the community in which the hogs are grown and wealth for the country as a whole. I do not think that statement can be challenged. More than that, we are facing now more or less normal conditions, or at least normal conditions are likely to be restored within a few months' time, and we will have before us a direct and definite competition with the hog producing countries of the world on the export market. That means that demand and supply will rule, and the Canadians will have to saddle themselves with the responsibility of facing that market and making good or falling down. I think probably the Provincial Department will join me in this statement that we would not attempt to put anything over on the hog raisers at the present time. It would be a foolish move to attempt to do so, because the farmers throughout Canada are doing their own thinking today, and they are making up their own minds as to what their plans and programmes shall be; but I would like to say that the whole situation needs very careful study, and it needs concerted action and a definite statement or a definite working out of a policy, and it needs the support of the hog raisers of Canada. The hog raisers themselves must accept the responsibility for their policy. The whole situation needs careful study from the standpoint of production and from the standpoint of marketing and from the standpoint of association or co-operation with the packers; it needs a definite understanding of the export market and the relations that grow out of that.

I do not think the Department should attempt to do this work alone, and I do not think the packers should attempt to do the work alone; but if by some means this Association, joining with others, could accept responsibility as regards a hog policy for this country and quietly work out that policy, I think we shall make some progress. I believe it is fundamental for the future of the industry, and if the work is undertaken in a proper spirit, it will mean wealth to the individual hog raiser, wealth to the communities in which the hogs are grown and wealth to the whole country. It appeals to me as the only sane and safe and statesmanlike way of facing the present situation.

W. H. English, Manitoba: In Ireland the hog is looked upon as the fellow that pays the rent; he is looked upon in Eastern Canada as the fellow that lifts the mortgages, and he is looked upon in Western Canada as the fellow that raises the bank account. If the hog raisers of Canada are going to continue in the business they will have to get a policy that will be successful. I was amused to hear my friend, Mr. Todd, call himself a farmer. There never was a time when there were more people who were farmers than are today. I was addressing 250 manufacturers in Hamilton the other day, and quite a number of them were farmers. They are just as anxious about the agricultural situation as the packers are, and the time is coming when we will have to take stock of every industry in Canada. There never was a time when there was such unrest, and we have got to get away from the idea that we are going to put two or three prices on one article. I remember the time, twenty years ago, when I had to haul pork sixteen miles to the nearest town. I had about 33 hogs, and I went in to Archie Speers in the town and asked him what they were worth, and he said 3c pound live weight or 4c dressed. We had to have a hog for the family, and we said we would see whether it would pay to sell the hogs alive or to kill them. We weighed the hog, and he went 206 pounds, and we dressed him, and he weighed 166 pounds. He was pretty fat, and we had the heart and the liver, but we kept a couple of dogs. At that time wheat was 46c a bushel, and we had to figure on every dollar. We figured that if we sold the hogs at 3c we would not make as much as if we killed and dressed them and sold them at 4c., by $12 or $13. We could haul them dressed to market on one sleigh, whereas it would take three sleighs to take them in alive, and we would save the dinners of two men and make a little profit.

They do not seem to figure that way in the abattoirs. They told us that the abattoir would be able to kill these hogs cheaper than the farmer because they would kill so many of them, and it seems a funny thing to me that if hogs are worth

15c or 16c a lb. they can get 60c and 70c a pound for bacon. I believe that the time is coming when the packer has got to figure a little finer, and he will have to cut out a lot of the high salaries of the fellows who are riding around in automobiles, and have men on the job who will be working the same as the farmer who works eight hours in the morning and eight in the afternoon.

The hog business has come to stay, and we are going to stay with the hog business. We do not know how soon we will be cut off from the cheap hogs to the south of us, and we want to have class and quality in our hogs so that they will sell on the markets of the world. The manufacturers are going to have a ship and send their products to every market of the world, and the agriculturists should have some of their very best bacon on that same ship, and send it to every market in the world. I do not think there ever was a time when we have a better chance to meet the markets of the world than we have today, and if we only keep on and do not get stampeded by over-producing and flooding the market, but if we just do a steady business we are going to have great success.

Mr. J. O. Duke: I presume I am as big a hog grower as any man here, and I never saw as bright a future as there is ahead of us for the hog industry. I can make more money now in feeding hogs than ever before, and I wish I had ten times as many as I have. I have tried almost every kind of farming; I have fed steers, and I never made any money out of it, and I tried to milk cows and I lost $500, but I could make money feeding hogs. I do not think it is to the credit of the Canadian hog growers that speeches should be made such as have been made here tonight. It may not be right for me to make a speech because I am a radical hog grower. I do not grow them according to the prescribed rules, but I can make more money growing hogs than doing anything else.

The Chairman: We would like some suggestions from Mr. Duke as to how he can improve the situation.

Mr. Duke: I know that hogs can be grown now at an immense profit. A gentleman came to me and said he wanted to get some manure; he was buying it in Toronto and paying $120 a car for it, and I told him I would not haul manure home if I got it for nothing. I told him I made the manure on my own farm raising hogs, and he said he would not dare grow hogs at the present price of grain; but I know that hogs can be fed at a profit. I presume I am the laziest farmer in Canada, but I do not think anybody ever saw any better hogs than the hogs I have.

Mr. Todd: I want to thank Mr. Duke for calling my attention to what is apparently a wrong impression that I have made. It is true the packer has had a bad year, yet I do not want to leave the impression that he is discouraged. There is no doubt that hog raising at the present time is one of the most profitable things a farmer can engage in, and the average of five years' experience at any time in the last 20 years in hog raising shows that it has been a profitable business, and that is shown by the fact that the number of hogs in Canada has been steadily growing, and a business that did not consistently pay would not grow.

Mr. Duke: There is no doubt the farmer and the packer should co-operate, and a great deal of the trouble in the past has been lack of confidence on the part of the farmer in the packer. Prices have been juggled back and forth two or three days in a week, and the farmer cannot understand how the packer can pay one price today and cannot afford to pay the same price tomorrow. If we had confidence in our packers and our buyers, I am sure there would be more of a steady production of hogs one week with another, and one year with another throughout Ontario. When the Government advocated the production of hogs, I went home and increased my sows from 10 to 70, but I am now back again to 10. I though I was going to lose money on hogs last year, but as a matter of fact the price of hogs last year was higher than the year before.

Mr. Todd: There is no doubt that hog raising is sound business. We have issued a number of pamphlets on that subject; we have published two booklets and in each of them we have taken that position that the production of hogs is sound business. We have pointed out that the price of grain will go down before the price of hogs, and that there would be a period when the price of hogs would be higher in relation to the price of grain than any other class of live stock. We have been found fault with because we have stated strongly that hogs would be a paying business. We believe absolutely in the hog business and that it will continue to be sound and that the production of hogs will always pay.

The Ontario Swine Breeders' Association

The Annual Meeting of the Ontario Swine Breeders' Association was held in the Hotel Carls-Rite, Toronto, Tuesday, February 8th, 1921.

OFFICERS

President	Cecil Stobbs, Leamington.
Vice-President	W. F. Wright, Glanworth.
Secretary-Treasurer	J. E. Rettie, Toronto.
Executive Committee	Cecil Stobbs, Leamington. W. F. Wright, Glanworth. J. E. Rettie, Toronto. Wm. Jones, Mt. Elgin. W. W. Brownridge, Georgetown.

Directors

A. Leitch, O. A. C., Guelph.
Wm. Jones, Mt. Elgin.
Russell Templar, Burford.
J. K. Featherstone, Streetsville.
H. A. Dolson, Cheltenham.
W. W. Brownridge, Georgetown.
George Douglas, Mitchell.
W. F. Wright, Glanworth.
Cecil Stobbs, Leamington.
George Gould, Essex.

Representatives to Fair Boards

Canadian National Exhibition:—H. A. Dolson.
Western Fair, London:— W. F. Wright; Geo. Douglas.
Ottawa Winter Fair.—Geo. R. Thomas, Ottawa; J. W. Brant, Ottawa; G. Rothwell, Ottawa; J. C. Stuart, Osgoode.
Ontario Provincial Winter Fair:—Wm. Jones; P. J. McEwen, Wyoming; J. M. Duck, Port Credit; W. F. Wright.
Eastern Canada Live Stock Union:—J. I. Flatt, Hamilton.
Royal Agricultural Winter Fair:—Cecil Stobbs, Leamington; H. A. Dolson, Cheltenham; W. F. Wright, Glanworth.

FINANCIAL STATEMENT

of the Ontario Swine Breeders' Association for the Year Ending December 31st, 1920.

Receipts

Cash on hand as per last report	$8 87
Ontario Large Yorkshire Swine Breeders' Refund Grant	75 00
Grant—Canadian Swine Breeders' Association	451 00
Total	$534 87

Expenditures

Grants:—	
Central Canada Exhibition	$60 00
Ontario Berkshire Breeders' Society	31 50
Ontario Large Yorkshire Swine Breeders' Society	52 50
Advertising	40 00
Printing	3 36
Directors' Expenses	285 65
Membership fee, Eastern Canada Live Stock Union	25 00
Hotel Carls-Rite, rental of room	10 00
Auditor	3 00
Reporting Annual Meeting	14 00
Cash on hand	9 86
Total	$534 87

Wm. Jones,
President.

J. E. Rettie,
Treasurer.

ADDRESS

WM. JONES, MT. ELGIN.

We have been passing through a year that has had greater troubles for the Swine Breeders of the country than any other year in the history of the industry. Feeds were a very high price from the fall of 1919 to the fall of 1920, but we think we can congratulate ourselves today that we have got to a time where the producing of pork is one of the most profitable lines of agricultural work. Feed is decreasing all the time, and pork is maintaining its price tolerably well. We heard addresses last night that would almost lead a person to believe that the future of the swine industry did not look very bright, but I believe there never was a time when the prospects for feeding swine were better than they are at this time. The shortage of pork will surely maintain the price, and with feed conditions down to normal it looks to me as if the breeding industries of the country will be very much improved, and I think that everything will right itself so that in a year's time the Association will find itself in a far better financial condition than it is at the present time.

ADDRESS

C. F. BAILY, MANAGING DIRECTOR, ROYAL AGRICULTURAL WINTER FAIR, TORONTO.

Since the annual meeting of the Royal Agricultural Winter Fair held last year we have met with many discouragements, but we have kept up our courage, and I am pleased to say that the prospects are very bright at the present moment. The building plans that were submitted to the annual meeting were completed by the City Architect, but it was a bigger proposition than they were in the habit of handling, with the result that it was somewhere near November before they had the plans completed. However, tenders were called for and the lowest tender was approaching $2,000,000, which was virtually 100% more money than we had available. We took the city architect to Chicago to the International Exhibition there, and we tried to impress upon him that what we wanted was a building to house livestock, and that his plans were too elaborate in almost every detail. He agreed at that time that he would cut this building down to meet our needs, give us sufficient accommodation and keep within the price; but when he got home and consulted with his associates they seemed to think it was beyond the ability of any engineer to carry out some of the things that we wanted them to adopt.

About that time the Hydro Electric Commission came along and made application to put six radial lines through the north end of the Exhibition grounds parallel with the Grand Trunk Railway, which meant about 100 feet of land that had to be reserved for the Hydro Electric. That meant that they were crowding the location of our building.

Almost simultaneously, the Harbour Commission said that they were going to reclaim three or four hundred feet of land on the lake shore front. At the same time they were taking over the Stanley Barracks property on the east end of the grounds, and they were also figuring out where they could locate a pure food building. The pure food manufacturers were prepared to finance on the amortization plan by paying certain fees for privileges in the building. The city began to think it was high time they were considering some definite policy as regards the planning of these grounds.

In the past whenever they wanted to erect a new building, they looked around the grounds and said: "There is an open space, we will put the building there," with the result that they just grew up in that way without any definite plan and without any looking to the future. A committee was then appointed composed of members of the Harbor Commission, the Rotary Club and other interested bodies, and they appointed a landscape artist to plan these grounds. The first set of plans came in and covered a period of 25 years with 5 year periods; that is, there were certain changes every five years, certain buildings that were obsolete disappeared, certain roadways went in. They changed the half mile track into a mile track extending it farther east and put in a grandstand that would seat probably 30,000 or 40,000 people, looking to the City of Toronto having a million people. They were going in the meantime to put all the agricultural machinery exhibits and everything pertaining to agriculture down in that section where the Stanley Barracks is at present, and the Arena itself was to be built just west of Strachan Avenue. You would go down that street between Massey-Harris buildings, and we would be facing that street and the space between Bathurst and Strachan Avenue farther east would be devoted to baseball diamonds and open air skating rinks, a summer hotel, etc.

Since that time this committee has gone out on the ground and found that the location arranged for the Arena meant that part of it would be out in the lake, and in the opinion of the majority of the committee that would mean that it would be two or three years before we would finally get our building completed. The committee met yesterday and decided that in view of the national importance of the Royal Agricultural Winter Fair, it would be unwise to attempt to put buildings on this site because of the effect it would have upon the industry and on the Association. The architect has now presented a new plan virtually on the same basis as the original with a lot of modifications that mean dollars and cents, one change being that we are going to cut out for the immediate time the selling ring where we were going to judge our sheep and swine and hold sales. That is something we can dispense with for the time being. Then there was the question of the dairy building that was going to house about 325 head of cattle and cost $150,000. We are now going to take the dairy stables in the Exhibition grounds and join them up to the Arena and in my judgment that will be better than erecting a building that will house 350 cattle, because many breeders may object to having their cattle in a building of that kind.

The committee yesterday approved of this new plan, and it will not cost more than $1.000.000. The Board of Directors of the C. N. E. meet this afternoon to approve of it, and I have been assured by the President that he is quite in accord with this proposition and prepared to advocate immediate construction. The city, on the other hand, are faced with the labor problem which is very serious and acute; they are paying out thousands of dollars to buy meal tickets for these men, and they are anxious to do something to create employment. I understand from the architect that he can have this plan ready for tenders within a week or two. and I see nothing in the way to hinder us having the construction started by the 1st of March, and our show held early in December of this year.

We have been treated pretty generously by the Government. We have a contract with the Dominion Government for $25,000 a year for ten years, and the same with the Ontario Government. We have contracts for about $6,500 with the packers and stockyards, and a promise of $10,000 for ten years. We have the Dominion Express behind us, and several millionaires in Toronto who are contributing $1,000 a year for ten years. Banks and hotels and a number of other organizations are prepared to back us, and the Retail Merchant's Association and the Boards of Trade are with us.

According to the agreement we have with the city, we will have to pay over $40,000 a year for ten years towards the capital account of the million dollar building, and we have to pay them $10,000 a year for the use of that building for about three weeks in the year. However, that is not a very serious proposition, as it would cost us that much in any case. We have this $40,000 to meet, and we have to go out and find another $10,000 to make up the $80,000, because we not only have to pay $40,000, but we have to guarantee $40,000 in our prize lists. As far as I can see from the temper of the people contributing to this enterprise, they are pretty anxious to know where the live stock industry stands in this proposition. In other words they are going to be guided in their contributions by the sort of support this organization receives from the live stock industry of this country.

I realize as well as you do that your organization is weak and that you are not in a position to contribute, but at the same time you are members of other organizations that have money, and I would like you to use your influence to do what you can to encourage the Executive of the various organizations to go the limit for a few years to help put this organization on its feet. We have been waiting for something like this for a long time, and it will be a credit to the country. I am not afraid of the kind of live stock we will have at that show. It will do much to advertise and promote the live stock industry of this country.

We are going through a rather critical stage in the history of this organization, and I ask you for your whole hearted support to put this over in a manner that will be a credit to the industry in which we are all interested.

The Ontario Berkshire Breeders' Society

The Annual Meeting of this Association was held in the Hotel Carls-Rite, Toronto, at 3 p.m., Monday, February 7th, 1921.

OFFICERS

President	Adam Thompson, Shakespeare.
Vice-President	G. A. Dewar, Wyoming.
Secretary-Treasurer	J. E. Rettie, Toronto.
Executive Committee	Adam Thompson, G. A. Dewar, J. E. Rettie, W. W. Brownridge, S. R. A. Dolson.

Directors

W. W. Brownridge, Georgetown.
Adam Thompson, Shakespeare.
G. A. Dewar, Wyoming.
G. H. Weir, Paris.
Frank Teasdale, Concord.
Wm. Boynton, Dollar.
S. R. A. Dolson, Norval Sta.

Representatives To Fair Boards

Royal Agricultural Winter Fair: Adam Thompson, Wm. Boynton, W. W. Brownridge.
Central Canada Exhibition: W. A. Wallace, Kars.

FINANCIAL STATEMENT

of the Ontario Large Yorkshire Swine Breeders' Society, for the Year Ending Dec. 31st, 1920

Receipts

Cash on hand as per last report	$196 02	
Grant, Ontario Swine Breeders' Association, 1919	521 57	
Grant, Ontario Swine Breeders' Association, 1920	52 50	
Interest	14 10	
Total		$784 19

Expenditure

Grants:—		
Central Canada Exhibition	$75 00	
Ottawa Winter Fair, 1918	75 00	
Ottawa Winter Fair, 1919	75 00	
Auditor	2 00	
Hotel Carls-Rite, Rental of Room	3 00	
Cash on hand	554 19	
Total		$784 19

R. J. Garbutt,
President

J. E. Rettie.
Treasurer

The Ontario Large Yorkshire Swine Breeders' Society

The Annual Meeting of this Association was held at the Hotel Carls-Rite, Toronto, at 4 p.m., Monday, February 7th, 1921.

OFFICERS

President	R. J. Garbutt, Belleville.
Vice-President	H. A. Dorrance, Orangeville.
Secretary-Treasurer	J. E. Rettie, Toronto.
Executive Committee	H. A. Dorrance J. E. Brethour Wm. Jones R. J. Garbutt, Belleville. J. E. Rettie, Toronto.

Directors

R. J. Garbutt, Belleville.
Wm. Jones, Mount Elgin.
D. J. Lerch, Preston.
H. A. Dorrance, Orangeville.
J. C. Stuart, Osgoode Sta.
J. E. Brethour, Burford.
J. K. Featherstone, Streetsville.

Representatives To Fair Boards

Royal Agricultural Winter Fair: R. J. Garbutt, J. E. Brethour, H. A. Dorrance.

FINANCIAL STATEMENT

Of the Ontario Berkshire Breeders' Society, for the Year Ending December 31st, 1920.

Receipts

Grant, Ontario Swine Breeders' Association, 1919	$223 48	
Grant, Ontario Swine Breeders' Association, 1920	31 50	
Interest	3 75	
Total		$258 73

Expenditures

Balance due Treasurer as per last report	$74 59	
Directors' expenses	6 00	
Auditor	2 00	
Hotel Carls-Rite, Rental of Room	3 00	
Cash on hand	173 14	
Total		$258 73

H. A. Dolson,
President.

J. E. Rettie,
Treasurer.

The Canadian Sheep Breeders' Association

The Annual Meeting of the Canadian Sheep Breeders' Association was held in the Hotel Carls-Rite, Toronto, at 8.00 p.m., Tuesday, February 8th, 1921.

OFFICERS

President	W. A. Dryden, Brooklin.
Vice-President	H. Follett, Duval, Sask.
Secretary-Treasurer	R. W. Wade, Toronto.
Executive Committee	W. A. Dryden, H. Follett, R. W. Wade, Col. Robt. McEwen, George Telfer.

Directors

W. B. Bishop, St. John, N.B.
J. A. McClarey, Lennoxville, Que.
Victor Sylvestre, St. Hyacinthe, Que.
Arsene Denis, St. Norbert Sta., Que.
George Gordon, Oak Lake, Man.
H. F. Follett, Duval, Sask.
R. Knights, Calgary, Alta.
G. H. Hadwen, Duncan Sta., B. C.
W. A. Dryden, Brooklin.
R. H. Harding, Thorndale, Ont.
Col. Robt. McEwen, London, Ont.
George Telfer, Paris, Ont.

Representatives To Fair Boards

Canadian National Exhibition: W. A. Dryden, Brooklin.
Central Canada Exhibition: Geo. W. Muir, Ottawa, W. A. Wallace, Kars.
Royal Agricultural Winter Fair: W. A. Dryden, Brooklin, Jas. Douglas, Caledonia, Col. Robt. McEwen, London.
Canadian National Record Board: Jas. Douglas, Caledonia; Col. Robt. McEwen, London; W. A. Dryden, Brooklin; Jas. Snell, Clinton; John R. Kelsey, Woodville.
Eastern Canada Live Stock Union: J. D. Brien, Ridgetown.
Western Canada Live Stock Union: G. N. Buffum, Bechard, Sask.

FINANCIAL STATEMENT

Of the Canadian Sheep Breeders' Association for the Year Ending December 31st, 1920.

Receipts

Cash on hand as per last report	$2575 17	
Unclaimed Cheque	12 25	
Registrations	7748 86	
Memberships	2662 00	
Interest	32 15	
		$13.030 43

Expenditures

Directors' Expenses	1079 90
Grants:—	
Ontario Sheep Breeders' Association	370 00
Saskatchewan Sheep Breeders' Association	89 00
Maritime Stock Breeders' Association	69 00
Alberta Sheep Breeders' Association	53 50
Alberta Provincial Sheep Breeders' Association	53 00
Quebec Sheep Breeders' Association	343 00
Manitoba Sheep Breeders' Association	66 00
Printing Records	4736 88
Printing Notices	68 85
Postage	50 00
Record Office, Balance Expenses 1919	484 41
Auditor	5 00
Hotel Carls-Rite, Rental of Room	10 00
Reporting Annual Meeting	23 90

Interest on Overdraft	50	
Record Office. for conducting Records, 1920	3600 00	
Membership Fees to Eastern and Western Canada Live Stock Union	25 00	
Counting of Ballots	5 00	
Cash on hand	1897 19	
		$13,030 43

(Sgd.) Will A. Dryden,
President.

(Sgd.) R. W. Wade,
Treasurer.

PRESIDENT'S ADDRESS

W. A. Dryden, Brooklin

It is a source of gratification to everyone interested in sheep breeding to see so many real sheep men in attendance at this meeting to-night. It would appear to me to be a pretty safe guide as to the active interest which is taken in sheep breeding in this country to-day. This is of great importance under present conditions as they exist in connection with the breeding of sheep, not only for the breeders of pure-bred sheep but the breeders of commercial sheep.

Wool and mutton have taken a considerable drop since our last annual meeting, and it seems to me that under these conditions, when we know that the business is not just as profitable as it was, it shows that you are taking an active interest in sheep, not only because of the immediate returns, but on account of the intrinsic value and the real worth of sheep breeding to farmers. The present time should bring home to us the importance of sheep. The men who keep sheep on our mixed farms in the Eastern part of Canada are successful. A great many of you who are here realize that the place which sheep occupy on a mixed farm is probably one of the most important branches of the farming operations, and it should be fostered more particularly and more carefully, not only because of the money they make for the farmer, but because of the part they play in the operation of successful farming.

There is no question in my mind that we have not yet reached the point where we fully realize the value to the same extent that the Britisher does, of the importance of sheep in farming operations. It is not at all uncommon to those of you who are acquainted with conditions in the Old Country to meet farmers there who think they cannot farm without sheep. These are men who maintain large herds of cattle and considerable size stud of horses, yet they also keep sheep, because they realize that under certain conditions and certain environment, certain climate and soil, it is impossible for them to maintain the production of their farms without sheep. It seems to me as time goes on, in probably a few hundred years—though not many of us will live to see it—people will come to a fuller realization of the important place sheep should occupy in our farming operations.

Most of you who are here are breeders of pure-bred sheep; some of you have found that your market for rams has not been quite as wide as it has been during the past few years. As individuals and as members of the organization which represents sheep breeding in this whole country, it is our duty and our privilege from time to time as the opportunity offers to encourage wherever we can, in our own neighborhood and in our district, the farmers who are not breeding pure-bred sheep and who are not using the best rams available to discard their poor rams and use only the very best pure-bred stock they can secure. We should try to sell a ram here and there where we know it will achieve results and make an impression, and teach the owner of the commercial flock that the use of a pure-bred ram means dollars and cents to him. We are often lead in our thoughts to try and export all our sheep, and many of the breeders in this country have outside connections and are in a position to export most of their rams, and in some cases they export the product of their neighbors. I think there ought to be room for all the rams we can produce right in Canada to-day.

In connection with our Record Office, I would like to say that there are irregularities which crop up from time to time at Ottawa, which would indicate that certain individuals who make these irregular applications do so carelessly and negligently and do not maintain their flocks right on their farms. It is not necessary to mention any specific case; I do not need to go into the matter in detail, but I think it is most important that this matter should be properly dealt with. Everyone of us should be most careful and diligent in the protection of our own private records. If the record is incorrect, it is of no use whatever; our records are in the custody of our office and of our registrars, and if we as individuals do not take every precaution to see that they are correct, our records will become more or less a laughing stock for outsiders.

I think as members of the Sheep Breeders' Association, we should congratulate ourselves upon the success which has followed the operations of a comparatively new organization actively engaged in work, particularly in connection with the sale of our wool. I refer to the Canadian Co-operative Wool Growers' Association. As a member of the Executive of that concern, I ought to be a little modest as to what I say, but I feel that that organization has rendered a service to the sheep men of this country which has not only a bearing to-day, but it will continue to be successful and it is going to mean to the sheep breeders of this country vastly more than its originators ever contemplated. We know from experience that the wool that was grown in this country previously was marketed in a very bad condition, and we know to-day that customers who have purchased lots of wool from the Canadian Co-operative Wool Growers' Association are coming back to purchase again. That is an indication of achievement and success. It is not at all uncommon to find mill men who were very hard to get interested in the Association and to do business with them, coming back again and making purchases from the Canadian Co-operative Wool Growers.

I understand a resolution is to be presented at this meeting for your consideration in connection with the manufacture of cloth from almost any kind of material other than wool, and that resolution will ask you to consider the advisability of requesting the Government to enact legislation whereby the wool grower will be protected and the public will be protected as to the quality of the goods which they buy. At the present time there are not many of you I daresay, who know what kind of clothes you are wearing! you do not know whether it is wool or shoddy or whether it is 40 or 50 per cent. wool. I think it will assist the wool growers of this country if, when a person goes in to buy a manufactured product of wool, he can have some knowledge as to the quality of the material he is buying. The Directors at their meeting last night recommended to this annual meeting that this resolution should be adopted.

SHEEP CLUBS AND REGISTRATIONS

A letter was read from J. A. Carroll, Agricultural Representative at Brampton, Ontario, asking that where Sheep Clubs are formed, the members have the privilege of recording their sheep at member's rates.

THE PRESIDENT: There are one or two matters arising out of the correspondence that probably you should take some action on to-night. The first one is the matter arising out of the request of Mr. Carroll, the Agricultural Representative in Peel County, asking for the privilege that boys and girls who are members of Sheep Clubs established under auspices which we can recognize, be allowed to record their lambs at the regular member's fees, that is to say, the Sheep Club would apply for membership, and the individual members of that club would have the same privilege as a fully-paid up member of the Association. Such a proposition will necessarily require a little thought and some working out, so that the whole operation of it can be safeguarded as far as this Association is concerned. I do not think it is the idea of Mr. Carroll or anyone else that the members of such Clubs should be allowed the privilege of recording a flock of 100 sheep or anything like that. Some means may be devised limiting the number of lambs that any individual member of such a club could record. If you see fit to permit this to take place, it would no doubt result in encouraging these young people to become real sheep breeders.

COL. MCEWEN: As you have received notice of amendment to the Constitution in regard to this question, it is a matter of considerable importance in the development of sheep breeding amongst our young people on our farms, and it is one that requires pretty careful attention as to how it shall be dealt with. I have not as yet satisfied myself regarding what these conditions should be, but I believe in doing something to encourage children to take on just such work as they are engaged in in these clubs, and I think some regulation may be framed to govern the registration in order to meet their views. On that account, I would move that our constitution be amended, and that the power be given to the directors of this Association for the Province of Ontario, because these directors can get together and consider it very carefully and see how it affects the organization, and they may arrive at something that would be satisfactory.

An interesting discussion took place in which Messrs. R. H. HARDING, COL. MCEWEN and MR. BRETHOUR took part.

THE CHAIRMAN: I would not think it would be considered advisable to refund the membership fees to the children or to allow them the privilege of recording their lambs gratis. It seems to me that some such proposal as this may be worked out so that the Burford Boys' and Girls' Sheep Club may become a member of this Association and pay the $2.00 membership fee, and if Jean Brethour, a member of that club wanted to record two or three lambs, she would pay the regular fee charged to every member of this Association, and the lamb would be recorded as Jean Brethour, No. 18, Burford Sheep Club, and for that lamb, the Association would receive 50c, the usual registration.

The motion was put to the meeting and carried.

SHODDY IN CLOTHING

Moved by Geo. Gordon, Seconded by Geo. Telfer: "Resolved that in view of the amount of shoddy, re-worked wool, cotton and other textile fibres that are used in the manufacture of woollen worsted goods, and the fact that the public generally are unable to ascertain the percentage of the re-worked wool and other substitutes used as compared with the percentage of virgin wool, be it hereby resolved that this meeting of the Canadian Sheep Breeders' Association in annual convention assembled request the Dominion Government to enact legislation that will require cloths to be stamped in such a way as to indicate the percentage of virgin wool, the percentage of reworked wool and other substitutes." Carried.

Mr. Gordon: I do not think that resolution needs much explanation. I doubt if there is an article on the market today that the average man or woman is so easily fooled on as woollen goods. I think most people decide as to the value by the price asked, and unfortunately the price does not always hold good. I have a letter from Mr. W. W. Thompson of Regina, who is a Yorkshire man who had worked in the woollen mills all his life, and he said the woolen art is camouflaged, and it is almost impossible for an amateur to tell the difference between a good or bad article. Therefore, it would be a blessing to the prairie dweller if he could buy the real goods and be sure that he had the real goods.

The following article is taken from "The Rural New Yorker," and I would like to read it:

THE USES OF SHODDY

"Like all salvaged refuse, it has its uses. It belongs in carpets, rugs, mats and places where it can be tramped in, or in cushions and ticks where it can be confined, and it would do in blankets for aged people who lie still, but not a shred of it has any business in clothing. The trimmings of a suit cost $6 up, and union labour to make it $12 up, and the man who pays more than that minimum, $18 for a suit but half shoddy, is stung. Less than one per cent. of the population has made billions selling such two and three, occasionally four times that high, making wealth by the profits, in depressing fleece wool price to the cost of gathering, sorting, cleansing and grinding rags, and a few clippings, and by repeated sales of short-lived clothing. This accounts for the commiseration that the public may be swindled on virgin wool, for the attempted bluff of "misinformed and misguided woolgrowers," as well as the public and legislators. If shoddy has only a little of the merit claimed for it its apologists are invited into the open to prove it. Everything else is put on the market that way. Let them make some batches of pure, unadulterated shoddy cloth and display it for sale in all the principal cities with 'This cloth is made wholly from shoddy. It is better than any virgin wool cloth, because it is made from reworked wool. Beware of any adulteration with new wool.' This surely is a reasonable challenge, which if accepted and proved successful will put a quietus on us forever. If not, we now serve notice that our fleece wool has carried about all the depraved shoddy under false pretenses that it is going to."

PROTEST AGAINST INCREASE IN FREIGHT AND EXPRESS RATES

Moved by Mr. Telfer, Seconded by J. R. Kelsey: "Whereas the increases in freight and express rates which have recently come into affect, or are being asked for, will have a very serious affect on the sheep industry of Canada. And whereas the present is a most inopportune time to increase the cost of anything in view of the general downward tendency of prices and the great drop in the prices of all the farmer has to sell, Therefore be it resolved by this Annual Convention of the Canadian Sheep Breeders' Association that we petition the Board of Railway Commissioners for protection against these increases." Carried.

FORMER RESOLUTION RESCINDED

Moved by **Col. McEwen**, seconded by **Dr. Couture**: "That the motion passed at the annual meeting of the Canadian Sheep Breeders' Association held at the Hotel Carls-Rite, February 5th, 1918, and the motion passed at the annual meeting of the Canadian Sheep Breeders' Association held in the Hotel Carls-Rite, February 4th, 1919, dealing with the necessity of Provincial Associations furnishing the Canadian Sheep Breeders' Association with an annual financial statement be rescinded."—Carried.

ADDRESS

Dr. J. H. Grisdale, Deputy Minister of Agriculture for the Dominion of Canada, Ottawa:

I cannot refrain from congratulating you upon the goodly numbers in which you are here to discuss the interests of this, one of the most important lines of breeding in Canada, and I want to congratulate you upon the enthusiasm that you are maintaining under rather adverse conditions.

The sheep industry in this country is comparatively small. We have probably 3,000,000 sheep in Canada, and we have a population of 8,000,000 and that is one sheep for every three people, which is not nearly enough; because in the first place, the fleeces won't begin to clothe us, and in the second place, there is not nearly sufficient meat produced for our own consumption. We as sheep men should endeavour to increase production in every way.

I have seen on the market in Canada in recent months some of the very finest cloth, not in broadcloth or cloths of that description which we sometimes think are necessary to wear on such occasions or at times that mark an epoch with us, but clothes that are well suited for general habiliment, clothes for every-day wear and Sunday wear as well, clothes that make a man look a great deal better than he is now looking, clothes which should be encouraged by every last one of us and principally by the sheep breeders of this country; but as I look around the sheep breeders here, I see hardly one suit of that kind of clothing. Now, I think we should set an example to other people by wearing the clothes I have referred to. I am sorry I am in the same predicament myself, but the next time I get a suit I am going to get the right kind. and I won't be ashamed to wear it either, because it will look better than the suit I am wearing now.

We have an excellent opportunity in this country to use up a little more of our own wool because we have mills where this wool can be made into cloth, and I have seen these cloths put on our markets and made up into suits that look well, and all the work is done right here in Canada. One of the Wool Co-operative Associations of this Dominion has succeeded last year, in the face of a falling market and in the face of many other difficulties, in selling wool at a very remunerative figure, and selling it locally, and selling it where it has been made up and sold as cloth to our own people, and that should be done all over Canada. That should be one of the ambitions of this Association to encourage this line of work.

I had an opportunity during the last few days of attending the Sheep Breeders' meeting in Saskatchewan, and I found even more enthusiasm there than here, and one of the members spoke of this very question of encouraging home manufacture and home consumption of our Canadian wools. There is no doubt something should be done to encourage home use and home consumption of our wools, and that would have the effect of maintaining a better price.

Another trouble with which we have to contend is the presence on our market of mutton from points on the surface of the earth where sheep grow a little more easily and with a little less care and less trouble than they do here. We have a little protection against that, but not enough. Too much of this foreign mutton comes on our markets and is sold as home products. When you go to the village butcher shop, you have no way of determining whether his meat is home grown or foreign grown unless it happens to look a little stale or mouldy or have a musty smell. We should have some way of protecting ourselves against this foreign mutton.

Another matter which is worthy the attention of every sheep grower is putting on the market our meat in better shape. I regret to say that my experience is that it is very difficult to get a good piece of mutton in a butcher shop today. You can get a nice piece of pork or a nice piece of beef, but when you want to get a nice leg of lamb, it is very hard to do so. It is either very badly butchered and tastes of the wool, or it has other faults. Another point is that when you get it cooked at an hotel, it is usually badly done. Often when you get a chop at an hotel, you think the hide has been swopped across it leaving the flavour of the wool on it. That is absolutely unnecessary, and often when you get it, it is so overdone it looks as if it was intended for a cinder or something else instead of a nice, soft, juicy chop that we know tastes so good in the Old Country. I never knew what a lamb chop was until I reached Glasgow and got one there. It was not the same kind of meat as we are accustomed to in this country at all. Most of our home cooks do not know how to cook this delicacy, because a lamb chop is certainly one of the nicest things we can eat. It is most easily digested and is the most delectable kind of meat we can get. Let us get busy and do something to advance the interest of our own flocks and our own industry.

We have tremendous opportunities in this country as breeders of pure bred sheep. There are grand opportunities for us. During the past two or three years, we have been building up our flocks, and now if we are compelled to leave the poor ones at home and sell only the good ones, it will have a much better effect on the industry, and we will breed a better article both as to flesh and as to wool, and that will help to build up the industry.

The Ontario Sheep Breeders' Association

The annual meeting of this Association was held in the Hotel Carls-Rite, at 8 p.m., Wednesday, February 9th, 1921.

OFFICERS

President	W. Whitelaw, Guelph.
Vice-President	Jas. Bowman, Guelph.
Secretary-Treasurer	L. E. O'Neill, Toronto.
Executive Committee	W. Whitelaw, Guelph; Jas. Bowman, Guelph; L. E., O'Neill, Toronto; Cecial Stobbs Leamington; G. H. Mark, Little Britain.

Directors

Cotswolds	G. H. Mark, Little Britain.
Dorset Horns	Cecil Stobbs, Leamington.
Hampshires	John Kelly, Shakespeare.
Leicesters	W. Whitelaw, Guelph.
Lincolns	S. Gardhouse, Weston.
Oxford Downs	J. E. Cousins, Harriston.
Shropshires	John R. Kelsey, Woodville.
South Downs	D. E. McEwen, London.
Suffolks	James Bowman, Guelph.

General Directors

J. D. Brien, *Ridgetown.* Geo. L. Telfer, Paris.

Representatives to Fair Boards

Canadian National Exhibition: J. D. Brien, Ridgetown.

Central Canada Exhibition: Geo. R. Thomas, *Ottawa.*

Ontario Provincial Winter Fair: James Douglas, Caledonia; John Kelly, Shakespeare; G. L Telfer, Paris; W. Whitelaw, Guelph.

Ottawa Winter Fair: A. R. Dawson, Ottawa; G. W. Graham, Carp; W. P. Hurdman, Ottawa; W. A. Wallace, *Kars.*

Royal Agricultural Winter Fair: J. D. Brien, Ridgetown; Robt. McEwen, London and W. Whitelaw, Guelph.

Western Fair, London: John Kelly, Shakespeare; Jas. Snell, Clinton.

Eastern Canada Live Stock Union: W. Whitelaw, Guelph.

FINANCIAL STATEMENT

Of the Ontario Sheep Breeders' Association for the Year Ending December 31st, 1920.

Receipts

Cash on hand as per last report	$1.740 16
Refund of Advances to Albion Sheep Club	710 00
Canadian Sheep Breeders' Association grant	370 00
Canadian Co-Operative Wool Growers, Refund on 1919 Warehouse Expenses	700 00
Sale of Shepherd Supplies	985 31
Sale of 1919 Wool on hand January 1st, 1920	628 66
Sale of Shearing Machines	294 10
Unclaimed Cheques from 1919	94 57
Sale of Wool Samples, 1920	87 31
Canadian Co-Operative Wool Growers, Advance on 1920 Sale	107.848 47
Interest on Victory Bonds and Stock	232 45
Refund Freight Charges. 1920	2 97
Miscellaneous	19 75
Total	$113.713 75

EXPENDITURES

Directors' Expenses	$601 80
Grant to Secretary	300 00
Grant to Ottawa Winter Fair	100 00
Auditor	50 00
Hotel Carls-Rite, Rental of Room	10 00
Reporting Annual Meeting	15 00
Grant to Memorial Hall, O. A. C.	25 00
Sheep flock competition, balance of 1919 prize money	127 00
Subscriptions to Journals	6 50
Advertising	40 00
O. S. B. A. special prizes to fall fairs	47 50
Shepherd supplies	865 62
Refund on Shepherd supplies	111 23
Corporation of City of Guelph, rent of Winter Fair building	200 00
Exchange	5 36
Telgrams	5 08
Express	52 88
Telephone	36 40
Postage	198 62
Printing	288 71
Wool Adjustments, 1919	10 92
Wool Sacks	3,164 10
Twine	809 95
Labor re Wool Sale	2 652 15
Warehouse Equipment	607 86
Office help	235 50
Refund membership fees	3 00
Office supplies	25 50
Expenses of staff	563 90
Freight charges on wool shipped to Guelph	4,439 88
Advance to shippers for sale of 1920 wool	76,896 00
Cash on hand	21,218 29
Total	$113,713 75

(Sgd.) GEO. L. TELFER, *President.* (Sgd.) L. E. O'NEILL, *Treasurer.*

PRESIDENT'S ADDRESS

GEO. L. TELFER, PARIS.

Something should be said with regard to the work of this organization during the past year, and I will try to tell you in as few words as possible what has been done. We have had in a very large sense a successful year, but at the same time a very hard year in which to do business. As you all know, we launched out into the grading of wool, and during the past year some 600,000 lbs. of wool has been graded at Guelph and sold, and I am glad to say the wool has all been sold, and the organization will proceed very soon to pay the money which many of you have been looking for for a long time. I know it has tried your patience, but you must remember that we are a co-operative concern, and we have to wait until the time comes when we can make a full settlement. We have to finance the whole of Canada, and that will explain the reason why we have been so long in selling all the wool and issuing the cheques. Wool had a very hard row to hoe during the past year; there was very little demand for it on the market and during the summer months it was almost impossible to sell wool. Ontario was in a better position than any other part of the Dominion because we got our wool together in good time and it was graded and put in extra nice condition. That all goes to show that the people of Ontario realize that from this time on, in order to get the full benefit of the organization for the sheep breeders and the selling organization, we must act in our own interest and put a good article on the market, and it will surely bring a good price.

You are all aware that the grading has been done through the good offices of the Dominion Government, and we are grateful to the Department of Agriculture for sending us men to grade the wool. Many of our breeders secured their returns, and they wondered why last year and the year before on a rising market, when wool was booming, they had a very much higher grade than they secured this year. Things have changed since we got into the period of low priced wool; prices have tumbled and we have to make an article very much better in order to find a purchaser; that is the explanation why the wool has not graded quite so high as it did the last few years.

We are more than pleased to present to you the prices and returns that we received for the wool. I will read to you some of the prices that we received: Fine medium combing 60c a pound; these are the gross prices. Fine medium clothing, 23c a pound. There seemed to be no call for the clothing class of wool; it was the hardest class of wool to sell. If any of you gentlemen had seen that wool you would say it was some of the finest quality wool that could be produced; it was really a fine class of wool, but there was very little call for it and hence we had to take the low price. Medium clothing sold for 20c and medium combing 52c, and low medium combing 42c, and there was a small quantity 1,307 pounds of the same class of wool that sold for 35c. This was some wool that was sent to the warehouse at Weston after the doors were closed at Guelph, and it had to be sold by itself, hence the lower price. You will all see the justice of that. We could not take the little dribbles of wool that came in and sell them at the same price as we could a large quantity. I am sure next year we will get a better market for all classes of wool. Low combing sold at 33½c and 1,516 pounds of that sold at 25c. Coarse wool sold at 24½c. and a small quantity sold at 14c. Burry and seedy sold at 25c. Soft cotts sold at 20c, and some soft cotts sold as low as 12½c. It is the same way all the way through with these little dribbles of wool; they cannot be sold at a good price. Dead wool sold at 14c; grey and black, 13c; tags, 8c; binder twine, 35c. That seems a fair price for binder twine. It takes in a great deal of real good wool, really fine wool which instead of receiving 35c should be sold for 52c.

Mr. Wright: What do you mean by binder twine?

Mr. Telfer: Wool tied with binder twine. It is very objectionable; the manufacturers do not care to handle it at all, and they will not buy it unless they can get it at a low price. Fine washed was sold for 70c; coarse washed at 64c; mothy at 10c; damaged at 14c, and Mohair at 40c. There was only a small quantity of Mohair.

I am sure that will seem satisfactory to you. The prices were the best that could be obtained. We were looking at the markets and wondering if we were going to get anything at all. Many of us have received in our first cheque for our wool more money than we otherwise would have received if we had to deal with outside people throughout the country, because wool could hardly be sold at any price. During the last few days we have completely cleaned up nearly all the wool at Weston, and we handled nearly 5,000,000 pounds, so that it has been a very satisfactory year so far as we are concerned with the exception of some low prices which were obtained, yet we should feel gratified to know that we got the very highest prices that were paid on the market.

MR. FEATHERSTONE: From what you tell us it looks as though it did not pay to bring wool to the market unwashed, because we would get double the price if it was washed.

THE PRESIDENT: No; it does not pay to wash, because you do not get the weight.

MR. FEATHERSTONE: You would not need to have the weight; you surely would not wash half of it out.

MEMBER: You only get a few pounds of washed; all the rest of it goes into other grades.

MR. O'NEILL: In regard to the coarse washed wool at 64c, it does look on the face of it that when coarse wool was selling at 24½c and coarse washed wool was selling at 64c that it would certainly pay to wash the wool. The explanation is that we have such a small quantity of washed wool that it was only possible to make two grades, and we classed them as fine and coarse washed wool, and this lot contained not only coarse washed, but low combing wool, and a percentage of low medium wool, and there was really quite a lot of fairly fine wool in the coarse washed. So far as the grading is concerned, the only time that the fleece is torn apart is when there is a seedy end sticking out or a few tags that you can feel from the outside; in that case these parts are torn from the fleece in order to save the fleece from going into a lower grade. If there are any objectionable features about a fleece that can be torn out, it is done.

MR. WRIGHT:I did not think you would accept washed wool?

THE PRESIDENT: The manufacturers do not want washed wool. In order to have a uniform wool it has all got to be gone through in the same way. The shrinkage in washed wool amounts to considerable.

I want to say a word or two as to the financial statement. That refund of advance to the Albion Sheep Club is explained in this way: We took upon ourselves the work of financing this Boys and Girls Club in Peel County, and we advanced $710, and we feel that we did a good work, because the boys and girls settled with the bank when the sheep were distributed and we believe we have started these boys and girls in sheep raising, and that was well worth while.

Now I want to draw your attention for a short time to shepherd's supplies. You will notice in that sheet that we have a refund of shepherd supplies of $111.23. We were not out to make money selling shepherd's supplies; as a matter of fact there is only a difference of about $8 between the buying price and the selling price. Our object was to give shepherd's supplies to the sheep men of this country at as low a price as we possibly could, and we have hit the mark almost to a nicety. We have an item of $809.95 for twine. This all goes into the pockets of the sheep breeders.

I may say that all over the world there is plenty of wool. We have been told that from 75 to 90 per cent of the wool of the United States is still in the grower's hands, and we should feel satisfied that we are in such a good position as we are. There is plenty of wool in the world, and that is why the prices are low. Since the war closed 2,000,000 bales of wool have been placed on the market, that was stored and could not be shipped during the war, which has had a great deal to do with the low prices. Stagnation in all lines of business has also had a great deal to do with low prices of wool. We hope we are past these periods of low prices, and from this time on things will right themselves, and we should not be discouraged by what we have gone through. Instead of getting rid of our sheep it is a good time to cull them out and keep in the game, because we will reap a good profit from maintaining our flocks.

A recommendation was placed before the meeting last year with regard to the bounty on wolves. The matter was left to the directors, and we took it up with the Department and secured results and the bounty was raised to $20 on brush wolves, and $40 on timber wolves, so that we surely have accomplished something, and if it will help the people in the north we are delighted.

I would like to draw attention to the aid we have received during the past year from the Minister of Agriculture in Ontario. We received considerable help from him and his Department, for which we are very grateful indeed, and I am sure the sheep men recognize the value of the Department of Agriculture and the great help they have been to us. We still expect that the Minister of Agriculture of the Province of Ontario will stay right with us, because we are a co-operative concern, and what we do is for the benefit of not only the sheep breeders, but of the people of this country. Greater production is what we require at the present time and wool and mutton are two very important items, and I am sure we can increase production with very great profit to ourselves and to the community.

Any of you who have taken an interest in the work of the Canadian Co-operative Wool Growers will feel proud of the work that has been done. During the past four years, as a director of the organization, I probably hesitate a little to state what we have been doing, but the credit should be given to the management, because it was to them more than to the Executive Committee that credit was due. I know that we have been supported from every quarter: both the Dominion Government and the Ontario Government and from all who have been interested in co-operative wool selling, and all I ask is that in the future you will remember that this organization is yours and that you give it all your support, both sheep breeders and all interested in wool, and I trust we will all labor together for the good of the cause and the upbuilding of the sheep industry.

I feel that I have been long enough connected with this organization, and I have held the honor of being president for some time. I was the first president of this organization, and now I am the last president, and I hope you will make that right by appointing another one. I feel that it is my duty to step down and out and make room for new blood this year.

GENERAL BUSINESS

Mr. T. Scobie: I am a breeder of Cotswold sheep, and I think we could supply the money for the purpose of having our wool manufactured. It seems to me that the farmer sells too much of his stuff in the raw state; they are now manufacturing a great deal into beef and butter, and the people who do that are the most prosperous, and I cannot see why we as co-operative wool growers should not manufacture our wool into cloth and secure a better price for our wool.

COL. McEWEN: That has been considered by the Canadian Co-operative Wool Growers' Association, and it is a very large question. A large amount of capital would be required and therefore it could not be entertained during the last few years. Another point that prevented it being taken up was the fact that we could not procure machinery. If the machinery was ordered it could not be obtained for at least 12 months, and perhaps longer. Every woollen manufacturer was working to his limit, and the machinery was being taken up as fast as it could be manufactured. We would have to manufacture material to make garments that were in fashion and in demand, and we would have to select patterns that would suit people. We had our hands full in looking after the marketing of the product, and we would like to get more information on the question of manufacturing before we entered that field of work, but I can assure you that we are keeping our eyes on the question and we are ready to do it whenever we see an opening.

THE CHAIRMAN: Col. McEwen has put the matter very plainly before you, and we have with us at this meeting Mr. Tisdale, Assistant Manager of the Canadian Co-operative Wool Growers' Association, and he will say a few words to us at this time.

ADDRESS

W. H. J. TISDALE, ASSISTANT MANAGER CANADIAN CO-OPERATIVE WOOL GROWERS, LTD.

From what has been said here to-night the old question of the woollen mill is coming up again. The question was also brought up in the West at the meetings held during the latter part of 1920. The men out in the West are bothered by the excessive freight rate for hauling their wool and they have wondered why their wool cannot be manufactured right at home. They have some ground for their argument, and, as Col. McEwen has told you, the matter has been looked into and it has been our endeavour to get in fairly close touch with the proposition and to find out everything we possibly can in the way of building and equipment, and certain other features that would need to be considered on the part of the wool growers association. Another thing would be finances, and another feature would be labour, and I might go on and mention a dozen other features that would have to be taken into consideration before any decision was reached. We have felt that for some time yet we have had our hands full finding out how to get the raw product in shape for the market so that it will appeal to the mill man who wants to use it. We want to have our stuff go on the market in proper shape so that the mill men will come back year after year for a further supply. We have found out certain things in connection with that. Like every other organization we had made mistakes, it is impossible to develop anything without making mistakes, we have to go along gradually and make these mistakes, but we will not make the same mistakes twice. For some time yet we will have things to find out, in connection with the marketing of wool, and one thing we must bear in mind in endeavouring to get farm products together for marketing co-operatively, and that is, that it is pretty much the case of co-operating with the manufacturer as it is with the producer. The manufacturer is only human, when you get next to him he is a pretty good fellow after all, and is ready to do business with you. You might perhaps bear in mind that prior to 1913 and 1914 the majority of woollen mills in Canada and other places found it pretty hard to make both ends meet. During the war they had a little better going, they were able to put in more equipment and perhaps extend their plant, but outside of that period they have had certain periods to contend with. If we as an organization attempted to buck them in manufacturing raw stuff into the finished goods, we would have to buck up against the same thing. We have been able so far to work up a certain trade with the Canadian mill men, and we have found that he comes back again for more wool. And he is satisfied the wool is put up in such shape that he can use it to the very best advantage, and if we start manufacturing ourselves we will no doubt lose that trade right at the outset. He will say: "If you want to start manufacturing some of your wool you can go the whole hog and manufacture it all."

The Ontario Poultry Association

The annual meeting of this Association was held in Guelph, at 8 p.m., Friday, December 3rd, 1920.

OFFICERS

President	PROF. W. R. GRAHAM.
First Vice-President	J. S. GREENSHIELDS.
Second Vice-President	THOS. SIMPSON.
Executive Committee	PROF. W. R. GRAHAM, J. S. GREENSHIELDS, THOS SIMPSON.
Secretary-Treasurer	J. E. RETTIE.

DIRECTORS

W. CARTER, *Londesboro.*
THOS. SIMPSON, Guelph.
G. G. HENDERSON, *Hamilton.*
A. E. FIELD-MARSHALL, Beamsville.
JOS. RUSSELL, Toronto.
J. C. DONOVAN, Toronto.
A. W. TYSON, Guelph.
R. OKE, London.
W. MCNEIL, London.
GEO. ROBERTSON, Ottawa.
J. H. SAUNDERS, *London.*
J. S. GREENSHIELDS, Toronto.
PROF. W. R. GRAHAM, O.A.C., Guelph

REPRESENTATIVES TO FAIR BOARDS

Canadian National Exhibition: WM. MCNEIL.
Central Canada Exhibition: ROBERT ESSEX; G. G. HENDERSON.
Eastern Canada Live Stock Union: J. H. SAUNDERS.
Ontario Provincial Winter Fair: WM. MCNEIL; J. H. SAUNDERS; THOS. SIMPSON; A. W. TYSON.
Royal Agricultural Winter Fair: J. W. CLARK; A. E. FIELD-MARSHALL; J. H. SAUNDERS.
Western Fair Association: J. H. SAUNDERS; H. R. K. TOZER.

FINANCIAL STATEMENT

OF THE ONTARIO POULTRY ASSOCIATION FOR THE YEAR ENDING NOVEMBER 26TH, 1920.

RECEIPTS

Cash on hand as per last report	$716 98	
Membership fees, 1920	488 00	
Total		$1,204 98

EXPENDITURES

Directors' Expenses	$392 35	
Eastern Canada Live Stock Union, membership fees	25 00	
Clerks	50 00	
Cash on hand	737 63	
Total		$1,204 98

A. E. FIELD-MARSHALL,
President.

J. E. RETTIE,
Treasurer.

Ontario Department of Agriculture

TWENTIETH ANNUAL REPORT

OF

The Agricultural Societies

AND OF THE CONVENTION OF THE

Association of Fairs and Exhibitions

FOR THE YEAR

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1920

Printed by
THE RYERSON PRESS.

To His Honour LIONEL H. CLARKE,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of your Honour the Report of the Agricultural Societies of Ontario for the year 1920.

Respectfully yours,

MANNING W. DOHERTY,

Minister of Agriculture.

TORONTO, 1920.

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ANNUAL REPORT

OF THE

Agricultural Societies of Ontario

1920

To the Honourable Manning W. Doherty,

Minister of Agriculture.

Sir,—I am transmitting herewith the twentieth annual report of the Agricultural Societies of Ontario, which also contains the proceedings at the Annual Convention of the Ontario Association of Fairs and Exhibitions held in Toronto, February 3rd, and 4th, 1920. This Convention is attended by delegates from the three hundred and sixty Societies in the Province of which it is the central organization, where all matters affecting the work and progress of these organizations are fully discussed and recommendations for future plans for development are carefully considered and inaugurated.

Rapid improvement is shown by the advancement of the educational features adopted by the Directors in charge. Favored in 1919 by fairly good weather conditions the various departments of the Fairs and Exhibitions were a marked success. Many new Agricultural Halls were erected, and, on the whole, the grounds were kept in a creditable condition.

The Report contains the statements of the finances of all the Societies, the prize money paid in the various classes, the value of their grounds and buildings, grants to spring shows and seed fairs, special grants to Societies in New Ontario, reports of stock societies, those which held field crop competitions and those, the gate receipts of which were lessened by rain, and a comparative statement of legislative grants for 1919 and 1920.

All of which is respectfully submitted.

Faithfully yours,

J. Lockie Wilson,

Superintendent.

OFFICERS FOR 1920

President	L. J. C. Bull, Brampton.
First Vice-President	W. J. Connelly, Cobden.
Second Vice-President	John Farrell, Forest.
Secretary and Editor	J. Lockie Wilson, Toronto.
Treasurer	J. E. Peart, Hamilton.
Auditor	G. de W. Green, Torouto.
Representative to Central Canada Exhibition	Fred. Bell, Britannia Bay.
Representative to Western Fair	J. E. Johnston, Belton, R.R. 1.
Representatives to Royal Agricultural Winter Fair	L. J. C. Bull, Brampton; Wm. Scarf, Toronto; Jas. MacLean, Richmond Hill.

Directors.

District No.	1	Jas. Ault, Winchester.
“	2	W. E. Smallfield, Renfrew.
“	3	W. J. Hill, Madoc.
“	4	J. N. McGill, Millbrook.
“	5	W. T. Scott, Milton.
“	6	G. C. Johnston. Ancaster.
“	7	F. G. Seaton, Lakeside.
“	8	R. W. McKellar, Glencoe.
“	9	Harry Smith, Kingsville.
“	10	W. Calder, Durham.
“	11	T. Rowland Hill. Huntsville.
“	12	E. F. Stephenson, New Liskeard.
		Jas. Tonkin, Fort William, and A. R. Woods, Sault Ste. Marie.

FINANCIAL STATEMENT, 1919

January 1, to December 31, 1919.

Receipts.

Balance from 1918	$84 15
Amount transferred from Royal Bank by Miss McFarlane in 1918, and should have been credited to her in previous financial statement	55 61
Memberships for 1919	604 00
	$743 76

Expenditures.

President's Honorarium	$35 00
Secretary's Honorarium	100 00
Assistants at Convention	15 00
Caretaker	2 50
Auditor	2 50
Directors' fees attending meeting	87 00
W. J. Barber, directors' expenses attending fairs	10 00
Wm. Halliday, directors' expenses attending fairs	10 00
R. B. Henry, directors' expenses attending fairs	10 00
J. L. F. Sproule, directors' expenses attending fairs	10 00
Premium on Treasurer's bond	5 00
Exchange on cheques	5 65
Rubber stamp	1 75
Printing, Legg Bros.	58 00
“ Haynes Press	2 00
“ Receipt Books	6 25
Typewriting, Miss Robinson	1 10
Postage	9 50
Miscellaneous	60
Treasurer's Honorarium	25 00
Balance in bank	346 91
	$743 76

Audited and found correct,

G. de W. Green,
Auditor.

February 2, 1920.

Ontario Association of Fairs and Exhibitions

ANNUAL CONVENTION

The Twentieth Annual Convention of the Ontario Association of Fairs and Exhibitions was held in Toronto on Tuesday and Wednesday, February 3rd and 4th, 1920. There was a record attendance when the meeting was called to order, and the proceedings were followed with the closest attention by the 400 delegates present.

PRESIDENT'S ADDRESS.

L. J. C. BULL, BRAMPTON.

I welcome you to the Twentieth Annual Convention of the Ontario Association of Fairs and Exhibitions, an Association that has done so much for the farmers of Ontario for the two decades of years that it has existed and is destined to do greater good in the years that are yet to come. Among the many Conventions we have held in the past none have exceeded this in numbers, intelligence and I am sure enthusiasm. This Association is the great clearing house for the 360 Societies in the Province, a veritable Farmer's Parliament where all questions that interest the farming community in so far as the production of live stock, dairying and agricultural products are concerned are discussed and ways and means provided for the uplift of all its branches. There are still a few Societies that have not even yet realized what your Association is doing for them. They forget, if they ever knew, that our grants have been increased through your efforts from $60,000 to $85,000, and we hope soon to have it increased to $100,000 in order to put us on the same basis as in other Provinces. You have been the means of securing from the Government $25,000 for the Field Crop Competitions, $10,000 for the insurance of your fairs from losses in gate receipts due to wet weather.

We have arranged with the Government that the Northern farmers be put on a better basis than those of the older sections of Ontario by apportioning their grants on double their expenditure for agricultural purposes, and, on top of this, have secured an extra grant of $5,000 to be distributed among these Societies. Time will not permit me to go into the many advantages secured through our Association to the Agricultural Societies of this Province, but I just give you these specimen bricks to remind you of the splendid work we have done, and still there are a few Societies who through neglect or indifference or niggardliness will not pay the small affiliation fee of $2.

You are all doubtless aware that on October 20th a change of Government took place in Ontario—a Farmers' Government it is called. We trust it will be true to its name and stand for all that is best, not only for the farming community but for all classes of citizens of this great Province, and we are assured that this is what they stand for by the definite statement of Premier Drury. The new Minister of Agriculture is a farmer from my county, and from what I know of him I believe that he will render valuable service to this Province. We have made many requests to preceding Governments, some of them have been answered to the full, others remain to be answered by the new Farmers' Government. The test is upon them and we hope to have their hearty co-operation in extending the work for the uplift and advancement of Ontario's greatest industry, an industry represented by us and by the Government in power. We hope to go to them with the fullest assurance of receiving their hearty co-operation with us and that they will back us up. If the farmers' interests prosper, all others must profit.

You are, doubtless, pleased to note that the important Department of Fine Art, Ladies' Work, etc. is receiving every attention. This is as it should be, and Miss M. V. Powell has been appointed to the staff of the Superintendent to revise the prize lists in connection with this department.

The Standing Field Crop Competitions continue to prove of the greatest possible value in the improvement of field crops in Ontario. At a recent convention of field crop experts held in the Parliament Buildings, a speaker said that the field crop competitions in the five South-western Counties of Ontario had done more to develop and advertise the corn industry than anything done previously; and, after viewing the magnificent display of grain at the Canadian National Exhibition he wondered why such an exhibit could not be made at the International Shows of the World to prove what Ontario can produce in the line of field crops and pure seed. If the Ontario Government decides to put up such an exhibit a better advertisement could not be given of the banner Province of this Dominion, and Mr. J. Lockie Wilson is the man to secure such exhibits from the prize winning fields of Ontario.

At the last Convention held a year ago an important resolution was passed *re* the standardization of farm machinery which was unanimously supported by the farmers of Ontario and Manitoba as well. If the Union Government at Ottawa does not move more rapidly in enacting the necessary legislation in this regard it may be necessary to set up a Farmers' Government at Ottawa that will see that this forward movement in our interests is put into operation.

I feel, assured, having attended many of your Conventions in the past, that my duties as your President will be light. Harmony has always prevailed at our meetings and the officers you have selected to surround your President have been men of enthusiasm and enterprise and ready in every way to assist me. I congratulate the Association and the Government in being able to continue the services of our Superintendent and Secretary Mr. Lockie Wilson, and I am sure we all trust that he may long be spared to lend his energy and enthusiasm to the work of the Associations of which he is the leading spirit. I thank you for the manner in which you have received my address and trust that we will go forth from this Convention resolved to do all we can for the advancement of the industry which we represent.

The Short Courses for Departmental Judges have proved of inestimable benefit and each succeeding year a better system is being worked out and more uniformity of judgment arrived at. I am fully convinced of the importance of Societies employing Departmental Judges. I believe that one reason why breeders of high-class stock in the past had hesitated to exhibit their animals at local fairs was that oftentimes the judges were local men and friends of the directors, and their awards were not made on the merits of the animals brought before them.

As the years go by the work of the lady judges at our fairs and exhibitions has required the greatest experts to make the awards. When you consider that painting, fine art of all kinds come under this head, it shows the necessity of judges properly trained for this work and the Short Course held on the Exhibition Grounds last year will doubtless be of the greatest value to all concerned. A number of our judges have been employed for some years and their work has been very satisfactory. Every Society should avail itself of the services of Departmental Judges whether for ladies' work, livestock or other products. The day is past when a neighbor should be asked to judge a neighbor's products.

JNO. FARRELL: After the splendid address of our President there is little left for me to say. He has predicted that, if you back him up, this Association will surely go forward in leaps and bounds. Many of those whom I see present to-day have been delegates for nearly the whole of the twenty years that this organization has been in existence.

HON. MANNING W. DOHERTY,
Minister of Agriculture for Ontario.

The President has spoken of the grants that have been assigned to us from time to time. In days gone by many of the boys associated with the working of the Fall Fairs know how they had to take out their little books up and down the concessions to get subscriptions in order to keep the fairs alive; but now when our organization has become of such importance, as it has to-day, we can call upon the Minister of Agriculture and his colleagues and present a worthy case and show results. Our Societies, as the President has outlined, have been gradually growing from year to year; that is what we expected, that is what we desired, and unless that was our history we would have no reason to-day to ask for any further assistance. But on account of the progress that has been made by organizations throughout the Province of Ontario, we meet to-day fully determined that the work shall be continued, and more extensively in the future than it has been in the past.

In Northern Ontario, there is a region of undeveloped territory, whence the millions of dollars which have been heaped as a debt upon this country through the unfortunate circumstances of war may be got, if only the necessary development and the money for such development is provided. The people in the North have a very heavy struggle to undergo. They must be encouraged and helped, and the settled portions of Ontario feel now that they have an opportunity to assist to build them up, and they must have assistance if agriculture is to keep pace with other professions there established, and a special effort must be made to keep our basic industry at the front. It is a well-known fact that a large proportion of the money to pay our war debt must be taken from the soil. Who is going to do that but the agriculturist? I mean by that not the imaginary agriculturist, but the man who takes off his coat and by the sweat of his brow tills the land. The man who will leave his comfortable home in Old Ontario must have a good deal of courage to go to the North. A man who has met with backsets in life such as sickness or other unfortunate circumstances and who has not the means at his disposal to go into the more settled portions of the Province and make a home for himself, and wishes to make agriculture still his occupation, decides to go to the North Country and there hew out his home. We know that the roads are not the best possible; we know the distances from the station; we know that the products of the forest at all times cannot be conveniently laid down where the price will be paid, and hence we feel that we must give help and encouragement to that enterprising man who has decided to make his home there, and the thousands of dollars that have been set aside for the purpose of helping him in his work are not injudiciously spent.

If there is any institution more than any other in Ontario that has results to show it is that of the Fairs of this Province. We have had a struggle. We have gone down deep into our pockets; we have taxed our energies, but the results that we have to-day are so encouraging that we do not regret anything done in the past. And as has been suggested in the address delivered by the President, he feels, and so do the Executive, that the time has now become ripe to appeal to the Treasurer of Ontario to give us another helping hand. $75,000 have been given us in the past, and if there is any gentleman in the Province that can put his finger upon one dollar of that amount that has been injudiciously spent then our argument is of no value. But we challenge criticism, because the results are there for more than the amount of money that has been expended. We feel that we are not extravagant to-day when, with your approval, we approach the Government and ask that they increase the grant to $100,000. Only a small sum indeed, but how greatly it will advance our interests. That is one of the subjects we are interested in and one that we want you to give your most earnest consideration.

Let me call your attention to the record that has been reached at the International Fair at Chicago by Canadian exhibitors. In competition with the very best stock-breeders in the whole continent of America, we find that our Clydesdales there on exhibition carried back four championships to the Province of Ontario. In the cattle line we find that there the championship sweepstakes for yearlings was carried off by Ontario and that the Junior Yearling got first place. What do you think of such a record as that? In the swine the championship for Yorkshires has been brought here too. This is not in a provincial contest, but at the International at Chicago. What about lambs? There again we have been successful in bringing many of the best prizes to this Province. Poultry and all other lines hold their place. How has this been accomplished? How do you think it has been brought about? Do you think it has been brought about by any individual effort? You who have been associated with this work know that it is because of those splendid little agricultural fairs which have been held and which extended encouragement and courtesy to the breeders from time to time, got them to bring their best stock out and place it in competition with that of their neighbors, and some there learned that they were worthy of the best place in the land and now they are in the forefront. Where is the man or woman who will challenge a work of that kind? We only want your endorsement and the work will go on as never before.

The President spoke of the judges, and they have been a very important factor. We know in days gone by, although we have capable men in our own immediate vicinity who act according to their own convictions, that a little jealousy creeps in and this has its effect. Some of the Department Judges have not been up to the standard, but the great majority of them have accomplished good work. If a man does not give satisfaction, report him to the Superintendent and he will not be sent again. The judges sent out have been a very great improvement over the old system and this has naturally added to the welfare of each Society.

There is another question and that is the standardization of farm implements. You know how enthusiastic we were last year, and what a united people we were upon that particular subject, and our anxiety that the resolution which we passed and submitted to our Federal Government be carried out to completion. But the machinery has not been quite as active as we desired, and we believe, if we poured a little more oil on it, that it is possible to get the work carried on to completion, and therefore, the hint that is thrown out to-day is only a warning that if the old political wheels do not turn more rapidly than in the past it may be necessary to get new ones.

I have travelled extensively over the Western part of Ontario and I find a very enthusiastic class of men associated with the various Agricultural Societies; but, in the past, they have had such a tremendous burden on their shoulders, in the financing of the fairs that it has sometimes weakened them. The wet weather insurance has brought relief in so many cases and the extra grants from time to time, and we can say to those who have worked so faithfully in the past that we are going to try to encourage them and to make their work lighter in the future.

To-day agriculture is not making the progress that we desire. We know that many of the men are leaving their homes and going into other professions because they believe that there is a brighter future in store for them in the cities, but we know that that is a mistake. In giving an address to a Labor Convention not very far from here one evening, I said to those 800 men assembled, in all seriousness, "Gentlemen, I have not come here to advise you, because you have sent for me to tell me and to make me wise, and that is the reason that I have come here. If I went to a meeting where those assembled were not any better posted than myself, there would not be any object in my going there." After discussing the various questions that interest the agriculturists to-day, I gave them an illustration of a man who had worked for 7 months on the land and showed them what he had in the bank at the end of that time, and then I said to this large audience that were securing from 90 cents to $1.15 an hour, "To every man in this audience who can hold up his hand and say that at the end of that time he has the same amount to his credit in the bank, I will give $25." But I did not have to give away any of my dollars. Agriculture held the top place.

I am delighted to meet you and I hope the harmony of the past will continue to reign in our pleasant gathering, and if there is anything I can do to help the good work on, you may rest assured that I will be glad to give it my helping hand.

REPORT OF SUPERINTENDENT.

J. LOCKIE WILSON.

We meet to-day under materially improved conditions as compared with those which existed the past five abnormal years. We are pleased to note that many of those engaged in the Empire's and Freedom's cause have returned to the homesteads and farms from which they were so greatly missed, while others who had previously no experience in agriculture are striving earnestly to learn the rudiments of it either on farm or small holding, and thus become producers of food stuffs so much needed in the markets of the world.

Production is one of the most important lines of work that any one, be he farmer, manufacturer or artisan can take up. Increased output and export are absolutely necessary in order that Canada may be able to pay off her heavy war debt. War-worn countries are in the greatest need of our livestock, and other agricultural products as well as our manufactures, and he who produces all he can not only derives all the benefits coming from steady demand at remunerative prices, but also assists the country in recovering the balance of trade so necessary for our future advancement.

Since our last Convention the Provincial elections have been held and a Farmers' Government has assumed the reins of office. As a result, agriculture will doubtless receive increased attention and you may be confident that anything in the interests of Fairs and Exhibitions that you may bring before the new Government will be carefully considered.

Our Societies received last year from the late Government an increase in the main grants of $10,000. Though not nearly as much as was asked for and required to meet the changing circumstances, it helped for the time being to relieve the situation. Owing to the formation of new Societies, chiefly in Northern Ontario, the grant of $75,000 which had not been increased since 1906, proved insufficient to enable Societies, and more especially the smaller ones, to do as efficient work as they desired. The per diem services of Departmental Judges were increased last year from $4 to $5. This was necessary owing to the increased cost of labor required to replace those who were employed in the Department's work as judges, the field crop competitions and fall fairs coming at the busiest season of the year.

The Canadian National Exhibition Directors have not yet seen fit to give our Association representation on their Board, notwithstanding the fact that an organization known as the Toronto Agricultural Society, which holds no annual meeting and makes no returns to the Department as required by the law and has been practically dead for twenty years, has been given representation. Our organization is of sufficient importance to be recognized on the Board of the Canadian National, as ours is the outstanding farmers' organization of Canada. We already have representation on the Central Canada Exhibition Board. Our Field Crop Competition Exhibit has been one of the chief attractions of these fairs. I would suggest that a deputation be appointed at this Convention to interview the Manager and Directors of the Canadian National and endeavour to have this glaring oversight rectified.

Last year this Convention went on record as in favor of all fairs and exhibitions in this Province being open to exhibitors from any other sections and not restricted to those in the district where the fair was held. This seems a reasonable proposition. If the Society wished to confine special classes to their immediate district, that would be all right, but the majority of the classes should be open.

Hackney.

FIELD CROP COMPETITIONS.

I mentioned in my report last year that the Dominion Seed Commissioner had written stating that the subvention from the Dominion Government towards prizes for Standing Field Crop Competitions would be confined to crops grown for seed purposes only, and that, in consequence thereof, ensilage corn and field roots would have to be eliminated from the competitions. I am pleased to inform you that, on my representation to the Hon. Geo. S. Henry, the Ontario Government assumed the financial responsibility for these crops and consequently, those Societies desirous of entering in them were still able to do so.

This year the Department received another communication from the Dominion Seed Commissioner intimating that complaints had been made that the Standing Field Crop Competitions and grain exhibits had apparently not been achieving the results hoped for. This will no doubt surprise you, as the opinion has generally prevailed that the Standing Field Crop Competitions were one of the most important lines of work taken up by the Societies since their inception upwards of 100 years ago. Less than twelve years have elapsed since this work was inaugurated, and the grant at that time was only $1,000 and ten Societies took part and a couple of hundred farmers entered. Last year we had nearly 8,000 farmers in the competitions, and the grant has from time to time increased until it now amounts to $25,000. Five judges did the work in 1908, one hundred and thirty (130) were employed in 1919. Indeed, the expansion has been so great that it has proved to be a difficult matter to secure the necessary number of qualified judges to do the work, and in some cases, I am free to admit, that some of those employed had not an opportunity to attend the Short Courses for Judges and were not in a position to explain fully to the farmers the reasons for the scores, when asked. This, I take it, is one of the chief educational functions of a Departmental Judge, to give, whenever necessary, the reasons for his judgments and placings.

There are eight other Provinces in the Dominion that have been given the same opportunity to carry on these competitions as you have in Ontario. While they number their contestants by hundreds, ours run into thousands. There may be room for radical changes in the other Provinces, but, until they come within hailing distance of Ontario, we should be allowed to continue our onward march of progress, without too many experimental changes. We have 360 Societies in Ontario, less than 200 have up to this time entered the competitions. Each year, however, the list is extending. In 1919 four new Societies entered this work, and new men are coming in each year to the Societies which are already in the competitions. In looking over the past, when you consider that in the twelve years of our operations, in five of them we were engaged with our backs to the wall, fighting for a world's freedom, the marvel is that such progress has been made. Many improvements have been embodied in our rules and regulations as the years go by, and I am sure you are always ready for suggested helpful changes, and we are to have an address from the Dominion Seed Commissioner, and any suggestions he may make, will, I am sure, receive your consideration.

Complaints have been made to me that the report of the Seed Committee on Standard Varieties has not been altogether satisfactory, particularly in limiting oats to two varieties. It is claimed that in some sections one of these varieties does not give as good returns and is not so well suited to soil and climate as others which have been utilized for years and have proved their value in such localities. This is a matter which might receive your consideration. As the regulation stands now, competitors having any other variety are penalized two points on the whole score.

In looking over the Appendix for 1919 which gives all the particulars in connection with the Field Crop Competitions, you will note that upwards of 60 different names of varieties of oats appear. You will agree with me that it is time that this number was greatly reduced. The total varieties in the year previous to 1919 was 90. While you may consider the reduction to two is too severe a cutting, I am of opinion that, in the initial stages, six of the outstanding varieties might be selected. Of the total number of entries in oats in 1919, 713 were of O.A.C. 72, 438 Banner and the following stand next in order—Abundance, Granary Filler, Mammoth Cluster, White Wave, and Yellow Russian.

The value of judicious underdraining of low lying farm lands was amply proved in 1919. The almost continuous rain which fell in the spring, not only delayed seeding but also resulted in many cases in other crops having to be sown later on. The extremely hot dry weather, which succeeded the wet spell, checked growth and prevented crops developing properly. This affected entries in the Standing Field Crop Competitions somewhat, but, nevertheless, not to the extent that might have been expected, and some magnificent sheaves and grain from the crops of 1919 were displayed at the Canadian National and Central Canada Exhibitions. A change in the rules was made during the past year permitting all the seven prize winners and other competitors who scored 85 points and over to exhibit at the above mentioned shows and also at the Guelph and Ottawa Winter Fairs which will induce a more extensive display of grain, sheaves and roots under normal conditions.

A resolution was passed at our last convention which made it imperative on those winning prizes in the Standing Field Crop Competitions to exhibit at their local fair a sheaf of grain from their prize winning field, provided that the Society offer the following prizes: 1st, $5; 2nd, $4; 3rd, $3. This, I think, was a move in the right direction and will serve not only as an additional attraction to the exhibits, but also as an advertisement for the competitors who have been successful prize winners.

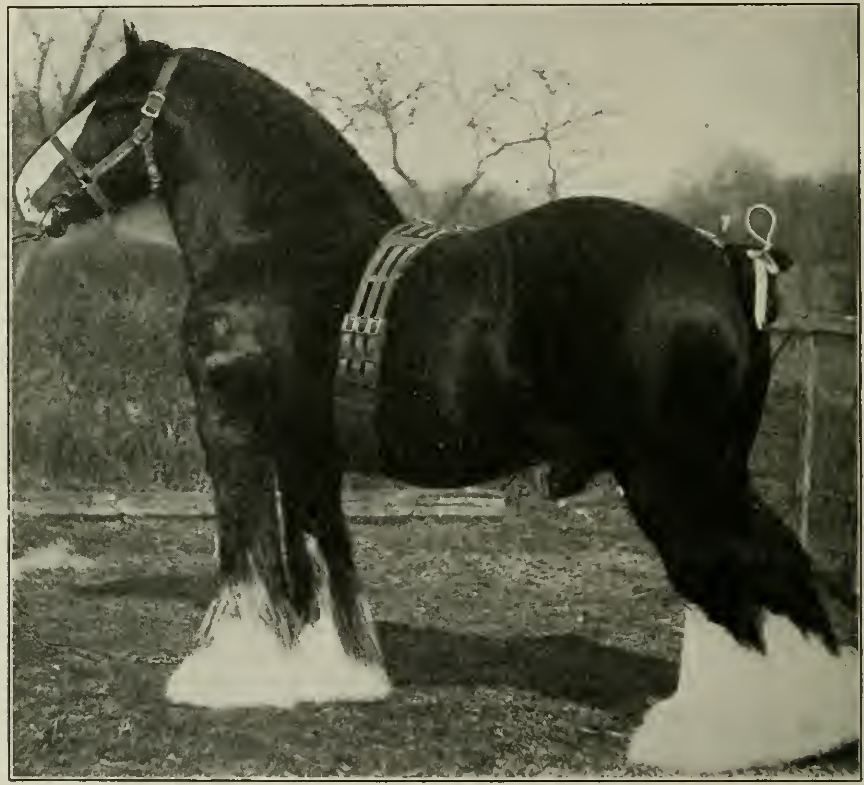
PRIZE LIST REVISION.

I am sure we are all anxious that the prize lists for our fairs should receive careful attention and revision. Complaint has been made from time to time that the lists, in so far as ladies work, domestic science and fine art are concerned, have remained in many cases the same for a number of years, and little variation in the style of the exhibits and arrangement of same was in evidence. A new departure has been taken in this regard and Miss M. V. Powell has been appointed on my staff and has now charge of the revision of the above named classes. She has been engaged for a number of years as judge of ladies' work and has proved her efficiency in that regard. All the Societies in the Province have been notified, if they so desired, to send in their prize lists for such revision. Up to the present 85 prize lists have been revised and returned to the Secretaries. A number of others are now receiving attention. I trust that every Society in the Province will see its way clear to submit its prize list to the Department and have it modernized. It is not compulsory for a Society to accept the revision made by the Department. The idea is to eliminate undesirable classes and exhibits many of which had become somewhat "shop-worn" by hanging on exhibition walls for a decade. In each Society, doubtless, will be found many ladies who might object to the revision made, but the Board of Directors should see to it that no local, selfish interference in the improvement of the prize list should be permitted by interested parties with a trunkful of the old original stock on hand.

The vegetable prize list also in many Societies is in as much need of revision as the above-mentioned, and Mr. A. H. MacLennan, the Vegetable Specialist, will, at this Convention, recommend necessary changes.

We have never had an executive appointed, and there may arise questions that would not be of sufficient importance to call the whole Board together, and an Executive consisting of the President, 1st and 2nd Vice-Presidents, Secretary and Treasurer could form a small body to arrange for minor matters that might come up from time to time. This, of course, would not interfere with the regular meetings of the Board of Directors as in the past.

The fairs and exhibitions, on the whole, last fall were well conducted and successful, but the midway artist, thimble rigger and fakir are again putting in an appearance at many of our fairs. I trust that the new Government will take steps to stamp out this evil. A number of years ago one or two officials of the police department were placed at my disposal and a clean-up was made, but for several years this side of the fair work has been taken out of my hands and controlled by the Provincial Police, and I might say in passing that some of the officials are not making a good job of it. Perhaps this Convention might do well to take this matter up and make such representations to the Government as they may deem fit. The Act is as follows:



Shire Blaisdon Draughtsman.
Reserve champion at Shire Horse Show, London, England.

> (2) The officers of the Society shall prevent all immoral or indecent shows and all kinds of gambling and all games of chance, including wheel of fortunte, dice games, pools, coin tables, draw lotteries, or other illegal games at the place of holding the exhibition or fair, or within 300 yards thereof, and any association or society permitting the same shall forfeit all claim to any legislative grant during the year next ensuing.
>
> (3) The officers of a society shall not allow any person to exhibit either publicly or to any individual any gambling device, or to bring any such gambling device into the building or upon the grounds in or upon which the exhibition or fair is being held.

(4) No person shall carry on, or assist or aid in carrying on, any kind of gambling, or any game of chance, at any agricultural, livestock, or industrial exhibition or fair, or within half a mile thereof.

(6) Every person guilty of violation of any of the provisions of this section, in addition to any other liability which he may incur thereby, shall incur a penalty of not less than $100 or more than $300 for a first offence, and in default of immediate payment of the penalty, shall be imprisoned for a period of three months unless the penalty or costs are sooner paid, and for every offence committed after conviction for a first offence, shall be liable to imprisonment for a period of six months.

I have made many appeals to the Board of Directors of our 360 Societies to make their fairs of educational value and avoid, as they would a leper, blacklegs and gamblers within the enclosures of their fair grounds, but, still, in some cases the appeal has fallen on ears that will not hear. I have threatened to withhold the Legislative grant, which, it is in my power to do, if this state of affairs shall continue; but my efforts in this regard along moderate lines are apparently not a success. Will I have the active support of the delegates here assembled if more strenuous means are adopted in 1920? What matters if $15 or $20 are secured from these fakirs if your sons are robbed of hundreds of dollars by law-breakers of the blackest kinds? I want you to give me your views and backing before the close of this Convention. It is up to you, gentlemen, to strengthen the hands of all who are interested in this necessary moral reform.

Weather conditions for exhibitions in the fall of 1919 were on the whole favorable, only $3,332 having been utilized out of the $10,000 grant for wet weather losses in gate receipts.

Very few complaints were received about the work of the judges, the Short Courses for Departmental Judges evidently having a beneficial effect on those who undertake the important work they are required to do. There is, doubtless, yet room for improvement before the 500 judges on our list will arrive at the standard of perfection. One hope of the future is the splendid work being done by the Junior Judging Short Courses that are being held in different parts of the Province by District Agricultural Representatives. I know that at the close of this Convention each delegate will go back to his Society filled with the spirit of the forward movement, which will leave behind a record of performance, so that others seeing his good work will endeavor to follow in his footsteps. Let each resolve to make the fairs of 1920 epoch makers for this banner Province of Ontario. Will each representative here whose Society in the past has been backward in taking up the Standing Field Crop Competitions see to it that there will be a mighty reduction in those 170 Societies which have failed to profit by the Standing Field Crops' splendid educational propaganda?

Lady Departmental Judges.

We have been endeavoring in recent years to arrive at a uniform system of judging Live Stock and Field Crops. The marked improvement in these lines has been very noticeable, so much so that a year ago it was decided to have the important work of scoring the classes dealing with ladies' work, domestic science and fine art receive the very necessary attention they required. With this end in view a Short Course for Lady Departmental Judges was held on the grounds of the Canadian National Exhibition last September. Nearly all our Lady Judges accepted the invitation and were present. The Courses lasted two days and every hour was fully taken up with helpful discussion and suggestions. During the Short Course the Judges spent considerable time going over the splendid display of Women's Work at the Exhibition and were delighted and instructed with the opportunity thus afforded.

There is a movement on foot that, doubtless, had its origin in our previous Conventions, to arrange where possible and feasible, to have the fall fairs and school fairs held simultaneously on Agricultural Societies grounds. I was invited to attend a meeting of District Representatives called to discuss the matter, and it was decided to have one of the members of this Committee address the Convention and endeavor to make satisfactory arrangements in this regard. In these strenuous days when time is the essence of every contract, and work is at a premium, everything should be done that can be done to utilize to the best possible advantage the precious hours, so that our attempted reconstructions may not be in vain.

STANDARDIZATION OF FARM MACHINERY.

Two years ago I attended a meeting of the farmers of Manitoba and brought before them a proposition for the standardization of farm machinery, particularly the breakable and wearable parts. Last year my report dealt with this subject, which is of such vital importance to the whole farming community and to a large extent to the implement manufacturers. At both of the above meetings of representative farmers of Ontario and Manitoba resolutions were passed urging the Federal Government to take this important economic problem up. Yours read as follows: "That this Association recommend to the Dominion Government that steps be taken to have the breakable, wearable parts of farm machinery standardized, and that a copy of this resolution be forwarded to Sir Robert Borden and Hon. Mr. Crerar, Minister of Agriculture."

The case you made out was such a strong one that in June of last year the Select Committee on Agriculture at Ottawa fully discussed and unanimously endorsed the project of the standardization of farm machinery, particularly of the breakable, wearable parts. All that is needed now is legislation to have this put into effect. When this is done there will be a lessening of the cost of manufacturing the parts and a great saving to the farmers, who will be enabled to secure their castings at a lesser rate and more conveniently.

There has been great loss and waste in the past as the result of the lack of standardization in agricultural machinery and its essential parts. Standards are used by many manufacturers outside of agricultural implements. Among the latter standardization is notoriously absent. One plow company alone has 37 different types of bolt heads none of which are interchangeable with the make of other manufacturers. The leading engineer of a large implement company states that standardization will mean millions of dollars saved every year. Will our Canadian Government rise to the occasion and do its part? I know I speak for you when I state that the farmers of Canada will do theirs.

You are endeavoring on your part as agriculturists to increase the output of your farms to pay off our war debt and assist in making our country prosperous. We are trying as best we can to standardize our agricultural products in order to save time, labor and money, and we are anxious to discover the kinds of grain which will produce the best results, and from nearly one hundred varieties of oats, for instance, as above stated, grown in this Province, you have by your action practically tried to eliminate 98 per cent. Is it too much then to ask that the manufacturers of farming implements in this country should co-operate with us in our endeavor to advance the interests of all? It will mean, no doubt, in the initial stages some losses and cost to the manufacturers, as it has meant much loss of time, labor and expense for the Ontario farmer to dispose of these different varieties of seed grain in order to replace them with standard varieties purchased at high prices and sown, so that larger crops may be grown and a greater quantity of necessary seed grain be available.

In previous years we have held a regular night session on the first evening of the Convention. The suggestion was made that we hold a banquet instead. Consequently, arrangements have been made with the proprietor of the Carls-Rite Hotel to prepare for the event. You have all, doubtless, on registering procured tickets for same. We expect to have with us at the banquet, among others, Hon. Dr. Tolmie, the Federal Minister of Agriculture, and I am sure you will be pleased to hear our new Minister for Ontario, the Hon. Manning W. Doherty, who has already shown that he has a grasp of the big questions that have to be solved in connection with agriculture in this Province.

Grand Champion Short Horn Bull. A splendid handler.

I thank you, ladies and gentlemen, for the always kindly and courteous hearing you have given me, and, working together hand in hand, much will be accomplished for the common good:

"For the structures that we raise,
Time is with material filled;
Our to-days and yesterdays
Are the blocks with which we build."

J. L. F. SPROULE: It is with a good deal of temerity that I take this platform after our Superintendent with his silver-tongued eloquence, and attempt in my weak way to open a discussion on that report which has been so full and complete. I will merely open the way so that you may take up a few of the points which he has laid before us.

It seems to me there is nothing that has tended to make agricultural life better in our rural communities than having our agricultural fairs. Those of us who take an interest in those things realize that the more interest you take in them the better we become ourselves. We are all spreading out for ideals. Where are you going to get them? In the places of perfection. And where are you going to find perfection in agriculture if not at our fairs? You find the live stock there. When we see those animals placed for exhibition side by side, we can easily see which are the better and we can go back to our homes and strive toward that perfection.

In Field Crops: Our Superintendent in his report said there were too many varieties exhibited in those field crops. I contend those field crops are tending to eliminate undesirable varieties. I do not think there is a sane man among you who, exhibiting a certain kind of grain, and seeing that he gets nothing for it year after year, will not try out the variety of grain which wins the prizes, and eliminate the discredited one. So we will find that year by year the undesirable varieties are being eliminated through the Field Crop Competitions.

The Judges: I presume the Department gets men who are able, but some of them have failed in giving the very best results to the competitors in making their decisions. I have been in the Field Crop Competition myself several times, and I have had the Judge come to me and say, Where is your grain? I would show him the spot and he would go through it and that was the last I heard from him. Last year the Judge who came to see the grain took me with him, and he pointed out the good spots and the weak ones, and told me why I was getting so many points on that score and why so many on another. When he got through I could see why the other man's crop was better than mine. That system is a good one, and it would be well for our Superintendent to instruct his Field Crop Judges to do likewise, so that these things may be made educational.

We have been talking about the support this new Government is going to give to Agriculture. I have the honor to be attending the United Farmers' Convention. We waited upon the Cabinet this morning, and they are favorable to everything they can do to build up the agricultural interests of this country, for they realize since they have come from the soil, what has been proven from day to day, that the agricultural interest of this country is the primary interest—that the first six inches of the soil must produce the wealth of this country, and feed the people. So our Government is prepared to support the agricultural interests as taken care of by our fairs.

In regard to the idea of standardization: We find standardization all along the line—of field crops and of the live stock industry; everything is tending toward that ideal, and that is right and good—and we want it as near perfection as the human brain can conceive and the human mind can formulate.

About the standardization of farm machinery: You know a year ago we passed a resolution here and our Superintendent forwarded it on to the proper authorities to take this matter in hand; but I think that it would be well for this Convention to pass another resolution strengthening the former one, so that those in authority will not forget that we are alive and may not forget we expect them to help us to arrive at perfection.

Our Superintendent scored the midway somewhat heavily and rightly. We have in many of our Fairs and Exhibitions a midway that is given the all important part. Entertainment may be good, but it is not everything. We want something educational set before us, and not all amusement, and I believe that the objects of our Fairs and Exhibitions are mainly to teach and uplift, and you can't get very much education or moral uplift in watching dancing girls and juggling men. These things should be eliminated from our fairs as much as possible, so that they may be made an educational institution rather than an entertainment.

About the banquet of to-night: I presume the great majority of you come from the soil and represent the farms as I do, or you would not be so interested in the shows of this country. We are going to meet there men whom you and I have helped put in office, and I presume at that banquet they will lay before you their ideals and aims, and you will know better and be able to tell your people better when you go back home what the new Government is going to do for us and what are their aims and objects.

Percheron.

A. R. G. Smith: I wish to congratulate you, Mr. Superintendent, on the very optimistic annual address that you have presented to the Fairs Association. We should stop and think, and everybody at this particular time of reconstruction should be as optimistic as possible, because there never was a time in the history of Ontario when the outlook was brighter for the manufacturing and agricultural interests than it is at the present time.

I note in the Superintendent's address that he says we must have increased production, and I as a farmer have no apology in saying that the farmers of this Province are going to put their shoulders to the wheel and assist in taking from the soil the necessary wealth for the payment of our great national debt. I am pleased to note that reference was made to the $10,000 increase in grant to the Fairs, and I am quite sure that a resolution will be brought before this organization asking for a still further increase, because those of you who are interested in the Societies' work know that our costs have not decreased, and if the Fairs of this Province are going to be as efficient as possible—and I know that they are becoming more efficient from year to year—we shall need more money. And I think the new Government will not think of saying "No" to the request of a grant for at least $100,000.

Reference was also made to Field Crops: It is a mistake to add 2 points to two specially selected varieties. The Field Crops should be the clearing house of the community for the varieties that are popular in that particular community.

I was also pleased to note that the Provincial Government financed the Field Crop Competition in connection with roots and corn, and I hope that still further grants will be paid for the Field Crop Competition, especially in corn. Last year we had evidence that the corn crop is the most reliable in the Province of Ontario, and at the present time indispensable with our milk producing herds of Ontario. I hope, therefore, that the Fairs' Association will stand behind the Superintendent in securing, if possible, still larger grants for competition for the corn crop.

I was also pleased to note the reference made for the revision of the prize lists. I think these should be revised almost every year. Your reference to Mr. McLennan was timely. We took advantage last year of a bulletin issued by the Department which did away with a great deal of confusion with various kinds of vegetables.

May I also suggest that in the revision of those prize lists, you should add a special class for the Women's Institutes of the Province of Ontario? 30,000 women in this country did noble work in this war, and we gave them last year $75 in prizes which produced one of the best exhibits we ever had in our fair.

We are interested in School Fairs. We have added about $200 to our prize list to give our little boys and girls opportunities of winning prizes, and in that way we do not interfere with their little organization which will eventually bring them to this Association to take our place.

We are also interested in what the Superintendent said about those fakirs. They came out quite prominently last year. One came to our fair and represented himself as selling some splendid literature, and it was not very long before he had a piece of canvas with numbers on and dice. We find the greatest difficulty in keeping those fellows from starting up a little game of their own when the police or whoever has charge of that are out of the way and do not see.

We are interested in the reference made by our Superintendent to the increased interest in live stock. I would suggest that the County Councils of this Province be approached for larger grants of money towards prizes for live stock. The County of Waterloo Council gave last year $200 to each Agricultural Society.

I hope we will have a very successful Convention and that the new Government will see their way clear to assist, as far as financing is concerned, the splendid work that the Agricultural Societies of this Province are attempting to do.

Moved by W. J. CONNELLY, seconded by E. F. STEPHENSON, "Whereas at the Convention of the Fairs and Exhibitions Association held in Toronto on February 13th and 14th, 1919, a resolution was unanimously passed and sent to Hon. Robt. Borden, Premier, and Hon. T. A. Crerar, urging that steps be taken to have the breakable, wearable parts of farm machinery standardized so as to permit of interchange of such parts on various makes of machines, and whereas no legislation on this subject has yet been passed, we, the delegates to the Fairs and Exhibitions Association held on February 3rd and 4th, 1920, strongly re-affirm the request previously made as to legislation being enacted with as little loss of time as possible." Carried unanimously.

W. J. CONNELLY then moved the adoption of the President's and Superintendent's reports.

R. J. BUSHELL, Kingston, in seconding this resolution said: The Kingston Fair was down and out five years ago. A number of farmers went in, and when we took over the Fair the gate receipts were $500 and the Fair cost $1,000 to run and we lost money. We spent $45 in advertising and had not the money to pay for it. We have been operating this fair for five years, and the advertising for the Kingston Industrial last year was $1,700; the gate receipts were $9,000, and I am pleased also to tell you that there are sixteen men on the Board of Directors and every one of them is a United Farmer. I have heard five Superintendent's addresses, but the one to-day is the finest of them all. He has told us that the Government set aside $10,000 to be divided among the Societies for wet weather insurance, but that $6,000 to $7,000 of that has been going back to the Provincial Treasury each year. The maximum grant is $300. If it was made $600 the whole of the $10,000 would be used up.

The reports were adopted.

ADDRESS BY FRATERNAL DELEGATE

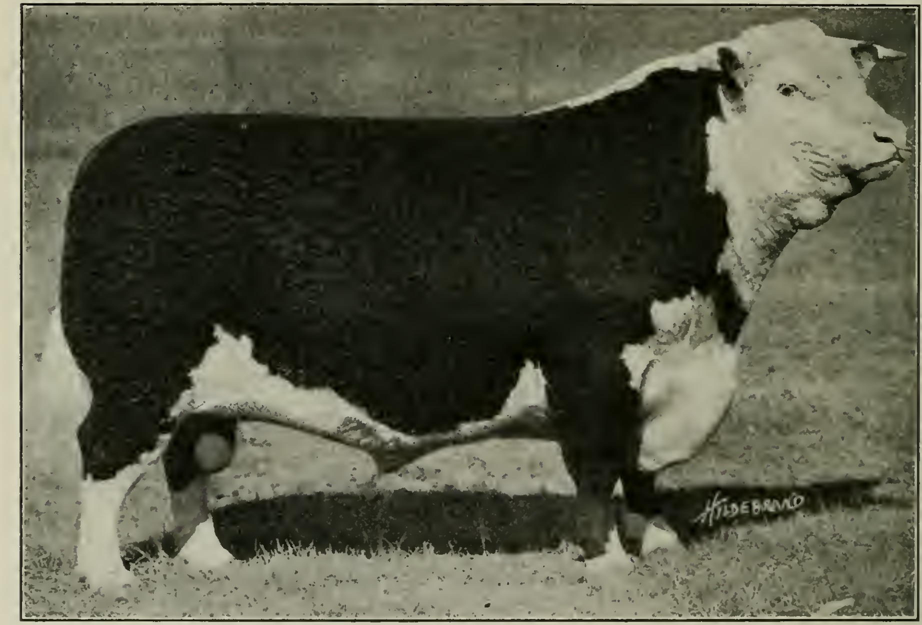
B. M. DAVIDSON, SPRINGFIELD, ILL.

It is an extreme pleasure to meet you this afternoon. It is not, however. my first visit to Canada, neither is it my first visit to meet practical fair men. Mr. Wilson addressed the American Association of Fairs and Exhibitions in Chicago last year, and I want to say to you, candidly, that we all fell in love with him. That real fraternal feeling, that brotherhood feeling that exists between Fair men of the States and of Canada comes from the heart, and we have ten members of your Canadian Fairs who are members of the American Fairs and Expositions. This Association meets in Chicago once a year, and we exchange there at that time our views which we have upon subjects that confront the average Fair manager. I see that the same feeling exists here in Toronto in your organization, towards the officers of your Association as existed towards them in Chicago.

I came to Toronto to-day to learn how you do things in Canada. I don't know that I can give you any instructions or information that will be of benefit, but I have enjoyed every address that has been given here this afternoon. I get a lot of information in going from one meeting to another. I come and tell you what I learn that some other Fair Association has done, and I go from here somewhere else and tell them what you are doing here.

I notice that you spoke of these Fair Managers as agriculturists. Do you know the difference between an agriculturist and a farmer? I have been informed that nearly every man in this room was born and reared on a farm. (Delegates, "That's true.") I know you are regular farmers. Well the difference between a farmer and an agriculturist, as I see it, is that a farmer is a man who actually earns his dollars on the farm and spends it in the town or city, and an agriculturist is a man who earns his money in the city and spends it on a farm.

By the way, I think the County Fair comes closer to the people than any other fair that we have. I am General Manager of a State Fair that spends $250,000 a year, a fair that pays out $125,000 in premiums, but, I don't feel that we come as close to the people as the average local fair does. The smaller fairs are and should be absolutely educational institutions. That is their purpose; that is why the Legislatures, States and Provinces appropriate money to assist you. Do you think for one moment that the men that make appropriations or grants, as you term them here, would appropriate money to assist a county fair where you have such games and such shows as would tend to teach your boy and my boy the debasing gambling systems? No, indeed, they would not. Therefore I heartily approve of everything that has been said against the gambling institution and the poor, disgusting show that you see on some fair grounds—I will say in the States, I don't know what you have here, as I have never had the pleasure of attending a fair in any province of Canada. We have a law similar to the one read by your secretary, and we have inspectors. I notice you have districts and you have a director representing these separate districts. We have inspectors representing districts, and those inspectors attend all those fairs, and if they find a show that is not such a one that they could take their families to they close that



A Hereford which won premier honors in the show ring.

show up. If they find roulettes or spinning wheels, that they would not want their little boys to see or to participate in, they are put out of business. When you bring these things home to yourselves, and do to the other fellow's son and daughter what you would have them do by yours, then you won't have to confront that question, and you will have better fairs.

The fairs are strictly an educational institution—they are practically what might be termed a "Community Club." But you should be very careful in arranging for your fairs. I want to say one thing that perhaps you might get some benefit from; I am going to ask you to consider the advisability of adopting what might be called the Budget system in operating a fair. If you will adopt that, you will have only one thing to do that will be guess work and that will be the anticipation of your receipts. You will only necessarily have to anticipate the amount of receipts.

The average well-conducted fair should be operated by a manager, not by five or ten or twenty directors. I don't think that is good business. It is all right to have those boys sit on the safety valve and to advise, but you need a good big broad fellow as manager, and I will tell you why. There is a speed fan. He has gone before your Board for an amount to keep the speed end going. Here is another fellow that is a Shorthorn or Cattle crank. He wants $7,000, and your receipts are only $10,000. You want a manager to sit down on this man, in the speed department, and say, you can have so much money, and to the Shorthorn man, you can have so much. The average fair should be divided up into about twenty departments—for instance, Sheep, Beef Cattle, Dairy Cattle, Heavy Horses, Light Horses, Swine, Poultry, then your Textiles, Fabrics, and your Art, your Farm Machinery. In the average fair it amounts to about twenty. And most of us are in this fair game through a set of circumstances, or because of the love of the game. I know it is not the money that you receive. There is not a man in this room who would go out and do what he does for the fair, and dig into his pocket and spend his money in attending these conventions, and spend the time at the local meetings, who gets his money out of it. You do it for the love of the game and the good of the community in which you live.

I want to emphasize just a little more the advisability of adopting this Budget system. Have your secretary apportion out about how much he can afford to spend for premiums in the different departments, how much for overhead expenses, then anticipate your receipts. Have your balance sheet before you start. Then you will get somewhere. Then if you happen to have a day's rain, call upon your secretary to spend that other $6,000 that has been turned back into the treasury.

I notice that you have an appropriation of $85,000 with an additional $10,000 against rain. You have 360 fairs. That is a wonderful showing for your population. In Illinois we have 69 fairs—you have nearly 300 more than we have. And we were born in 1818. And the Legislature of the State of Illinois is kind and good enough to turn me over $110,000 to give it out to these boys to help along their fair, and, I spend every cent of it.

I require them in the first place to make a sworn report to me. I tabulate the entire offerings of premiums. In the first place, I pay them 60 per cent. on the first thousand that they spend. On the next thousand I give them $500, or 50 per cent. On the next thousand I give them 40 per cent., and over that they get 30 per cent. So I help them out. And we have good fairs—good livestock fairs. It is true down in Illinois the horse exhibit is somewhat lessened because tractors have come along and tried to put our horses out of business. But the cattle are coming along just the same.

I am glad to note from the showing of hands a while ago that every man here is a real farmer. I know you are doing something, because the Canadian Government has a show down at Springfield, Illinois, and they put on a nice agricultural display. People will come up to my office and say," Great Scott, are you going to let Canada up there beat our County fairs?" "Well," I say, "What is your verdict?" "They have done it." The Canadian Government puts on a wonderful display at our show, and through that display and the enormous showing that you are making here in Canada, I know things are going on. Last night coming over here I saw in a Chicago paper that over 25,000 farmers had come to Canada to find a home. You are getting those boys up here. They are all good fellows. They will be your neighbors and you will say to them, "Bring the rest of the family." Then you will have just as good roads up here as in some of those States that we brag so much about.

Something was said this afternoon about what the ladies and the women of this Province were doing in helping them out. Go over to the Agricultural College and ask them to send some of these students that they turn out, and help them organize Boys' and Girls' Calf and Pig Clubs. Pick out one fellow from each township in your county, put him under a tent, and have some good instructor come and show him how to judge live stock. Have him bring the different breeds of dairy cattle and tell those boys how to judge those animals. I am sure there are some here who manage fairs who don't know how to judge cattle. The same man that feels guilty has a son who knows more about it than he does. That son is going to the Agricultural College if you permit him, because the trend is that way, and the boy is smart enough to see it. I want you to give that Boys' and Girls' School some thought, take it up with your fellows and talk it over, and if it is feasible adopt it, and try to work something out of it. I picked up last night also a copy of the *Booster*, and I read "Uncle Henry on the Passing of the Horse." There might be something in this. Watch and don't let it come to pass.

UNCLE HENRY ON THE PASSING OF THE HORSE

Every little while they tell us that the horse has got to go.
First the trolley was invented 'cause the horses went so slow,
And they told us that we better not keep raisin' colts no more.
When the street cars got to toting what the horses pulled before.
I thought it was all over for old *Fan* and *Doll* and *Kit*,
S'posed the horse was up and done for, but he ain't went yit.

When the bike craze first got started, people told us right away,
As you probably remember, that the horse had saw his day.
People put away their buggies and went kitin' round on wheels,
There was lots and lots of horses didn't even earn their meals;
I use to stand and watch 'em with their bloomers as they'd flit,
And I thought the horse was goin', but he ain't went yit.

Then they got the horseless carriage and they said the horse was done,
And the story's been repeated twenty times by Edison.
Every time he gets another of his batteries to go
He comes whoopin' out to tell us that the horse don't stand a show
And you'd think to see these chauffeurs, as they go a chauffin' it
'Twas good-bye to Mr. Dobbin, but he ain't went yit.

When the people git to flying in the air I s'pose they'll say
As we long have been a sayin' that the horse has had his day,
And I s'pose that some old feller just about like me will stand
Where it's safe and watch the horses haulin' stuff across the land;
And he'll maybe think as I do while the crows above him flit,
Oh—they say the horse is done for, but he ain't went yit.—*The Horseman.*

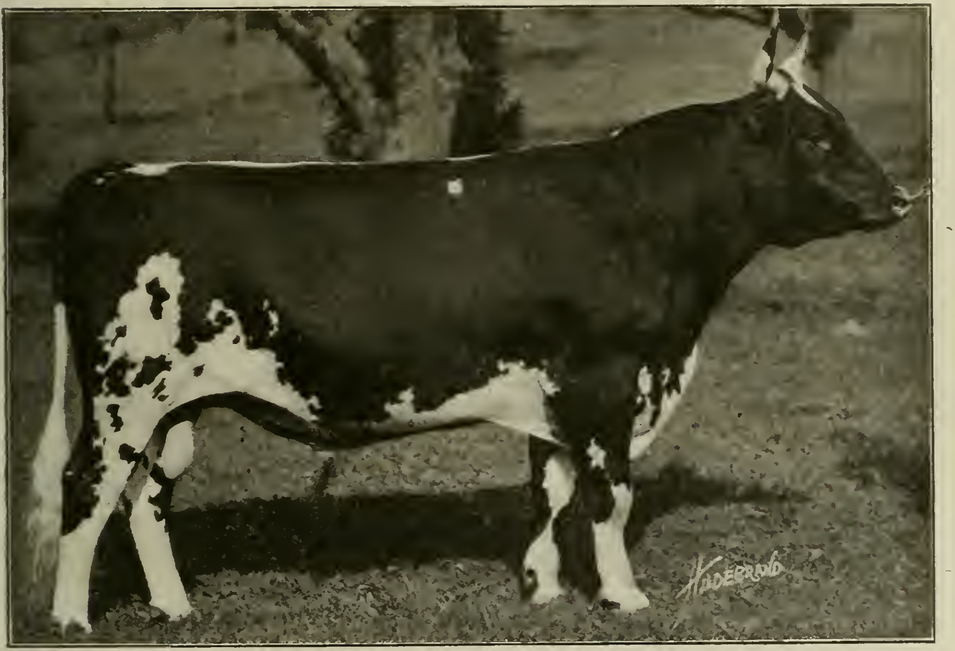
C. O'Reilly: We worked out something among our boys in a judging class at last fall's fair. There were twenty entries and the boys got very high marks.

B. J. Bushell: Mr. Davidson told us that he had $110,000 to spend on 69 fairs in Illinois. Would he please tell the delegates gathered here to-day, so that the Board of Directors can take it in, what is the population of the State of Illinois.

B. M. Davidson: About 5,000,000.

B. J. Bushell: Twice as much as Ontario probably.

The President then expressed the gratitude of the meeting to Mr. Davidson for his presence with them and the pointers given in his address.



Good Ayrshire type.

THE EVOLUTION OF THE AGRICULTURAL SOCIETY.

E. F. Stephenson, New Liskeard.

Sec. 12 of the Act respecting Agricultural Societies states that the "Objects of Societies shall be to encourage improvements in agriculture, horticulture, manufactures and the useful fine arts." The sub-sections of this section relate the manner in which, under the act, agriculture may be encouraged, viz.: By procuring and distributing pure seed; by offering prizes for essays on subjects relating to agriculture, horticulture and the fine arts; by offering premiums for excellence in the raising of stock, for the invention and improvement of agricultural or horticultural implements, for the production of grain, and experimenting in the growing and testing of crops, etc.

With such wide latitude under the law, the question seems pertinent, Did the directors of the past rise to their possibilities? Did they do the work they were called upon to do, or expected by the Legislature to do? It would appear that the law gave them power to carry on the work which was later taken up under another branch, viz.: The Farmers' Institutes; but our directors of agricultural societies did not, except, perhaps, in some very few cases, go any further than hold fall fairs, and award prizes. In some cases spring stock fairs and seed fairs were held, but these were almost abandoned. But, we must not condemn our forefathers. In order to judge them we must put ourselves in their places, and remember the time in which they lived. They had land to clear, homes to hew out of the forest, roads and bridges to build, and no government to relieve them of this kind of work as those who live in the present age have. But they cleared the land, made the roads, erected buildings, and made it possible for us to do what they could not do.

Just here, I think I am justified in saying that it appears that party politics, some sixty of seventy years ago, when party feeling ran at fever heat in some parts of Ontario, must have interfered with directors unitedly doing the work they might otherwise have done, for we all know that a house divided against itself cannot stand. The reason why I make this reference to party politics is because of a minute which appears in the minutes of a meeting of North York Directors held sixty-six years ago. The minute is to the effect that any member who introduces politics into these meetings shall be fined five shillings.

But, I really believe that the greatest disadvantage under which the directors of early days labored was the lack of efficient judges, and I must emphasize what I have to say in regard to judges, because, even in our times the matter of having efficient judges cannot have too much attention. Even yet, scarcely a fair is held without some one taking offence because they believe they have not received justice. One cannot imagine anything which has a more injurious effect than for the public to be lead to believe that judges at the fairs are inefficient, or that they act unjustly. In every community, I do not doubt, are to be found those who once were exhibitors at the fair but who have stopped being exhibitors, and if asked the reason it is more than likely they will say it was because they had not received justice from the judge. In some cases they have been right, but in most cases they have not been. Many people are obsessed with the conviction that everything they have is better than any other person's.

I wish you to distinctly understand that I am not condemning the judges of the early days as a class. It was the exception, and not the rule when judges acted unfairly.

So, instead of blaming our fathers for not having made greater progress along agricultural lines, let us honor their memories for what they did accomplish under the conditions and handicaps they had to contend with, for they kept the "home fires burning" until a new generation came forward and took the work off their hands, and carried it on more energetically and more vigorously.

It was the good work done by this organization of Fairs and Exhibitions, together with a live superintendent, both working together harmoniously, which has brought about the evolution of the Agricultural Society. It might be considered superfluous for me to dwell upon what has been accomplished through instrumentality of this organization, because many of you are quite as conversant with these facts as I am; but my paper would not be complete did I not make some reference to the work of the Fairs and Exhibitions Association.

As a means for carrying on practical educational work on the farm, the encouragement offered to exhibitors in the standing field crop competitions must easily take first place. These competitions have stimulated the farmer to use purer seed, to destroy noxious weeds, and to give more attention to soil cultivation and fertilization. Also, I think when the farmer knows that an expert judge is to visit his farm he is apt to tidy up his place. At least this is how it acted with myself. Urged by this organization, the Department has enlarged the grant to $25,000, and I hope the time will come when the entries in these field competitions will be so large that the grant will have to be doubled.

The introduction of the school children's fair was a splendid idea, and so far, I am assured, has been very successful. I would urge you all to give every encouragement to the children in this good work. Surely it is most desirable that our children should be encouraged in their garden work. The boys and girls of to-day will be the men and women of to-morrow. Soon, very soon, they will take our places. Let us fit them for the work.

The next change under Mr. Wilson's superintendency was the change made in the system, or basis on which the Government grants are made. Formerly there was a fixed sum. All the society had to do was to secure a certain membership, and a definite grant was made. Under the present system grants are made in proportion to the work done—or, in other words, according to the cash paid in prizes. This is far the better, and more equitable system.

Then there is the provision setting aside $10,000 for a "rainy day."

LADY DIRECTORS ON FALL FAIR BOARDS.

Mrs. Laura Rose Stephen, Huntingdon, Que.

When Mr. Lockie Wilson requested that I give an address on "The Advisability of Women being on Fair Boards" I was glad to comply for two reasons: first, because I am strongly of the opinion that no Fall Fair Board is complete without women representatives, and secondly, because since early girlhood I have been actively interested in Fairs, and felt this would be an opportunity of gaining more enthusiasm and knowledge along the line of one of my hobbies. There is nothing like a hobby to keep spice in life. Exhibiting at fairs keeps you interested throughout the whole year—planning and working to show something better.

It seems unnecessary for one to expatiate even briefly on the advisability of women acting with men for the furtherance of fair work. Women have made such advances into preserves held sacred for men, it would seem that no position is really now secure to men alone. Almost daily do we learn of women having won their way to new and high positions or of having unusual honors conferred upon them. We have women lawyers, doctors, judges, ministers, and members of parliament. No door seems now closed fast to women. The unusual civic conditions of the past six years have placed women side by side with men in workshop, office and laboratory. Men have had, through circumstances, to see women from a different viewpoint and, I will be pardoned when I say the vision of man has broadened and his conception of woman's worth and possibilities has vastly increased. Women have demonstrated that they have education, brains, nerve power and physical endurance sufficient to make them useful and needed in almost every sphere of world activity.

Our first record of the human race fits beautifully into the setting of the Country Fair—Adam and Eve in the Garden of Eden—Adam the first agriculturalist and Eve his helpmate. Ever since that time have men and women worked in harmony and unity, tilling the soil and making for themselves a home in a garden. In no branch of industry is there such intimate thinking, planning and working together of husband and wife, as when farming is the occupation. What more dejected, miserable, one-handed person can you find on earth than a bachelor farmer living alone?

Woman has ever been linked with agriculture. She knows the business, and is intensely interested in every branch of it. And now I have come to my point, namely, that to place a woman on an agricultural fair board is not lifting her to a new and bewildering position, but to one into which she fits and can immediately do good work. Her advent will come as no startling innovation nor will there be fears that she will not measure up to her new tasks or duties. Her life work and surroundings have admirably qualified her to render a distinct service along fair work lines.

A popular winner.

There will be a few who have grown old and inactive on Fair Boards (quietly and quickly get rid of them for they are certainly dead wood) who will rise up and protest, asserting that fairs in all the years back have always been managed by men, and women will only make a mess of things. I have a great antipathy to that word "always," it is the millstone dragging on the neck of progress. "We've always had that, always have done so and so, always charged 25 cents," and to break away from the stubborn-headed conservative "always," the first steps may mean to elect to the fair boards a group of alert women. Now, Mr. Bushell's fair in Kingston has done so well with sixteen men directors what would it not have done with six women on their board.

Men are apt to get into a rut along fair management. They are orderly and methodical, and when once a way of doing things is established, are more than likely to keep right along in the same old way, in other words get into a rut, and a rut is a coffin without ends. A woman is made in an entirely different mould. She just loves changes. The fascination of the ever-changing styles, and the way at each spring house cleaning she moves the furniture about, testifies to this.

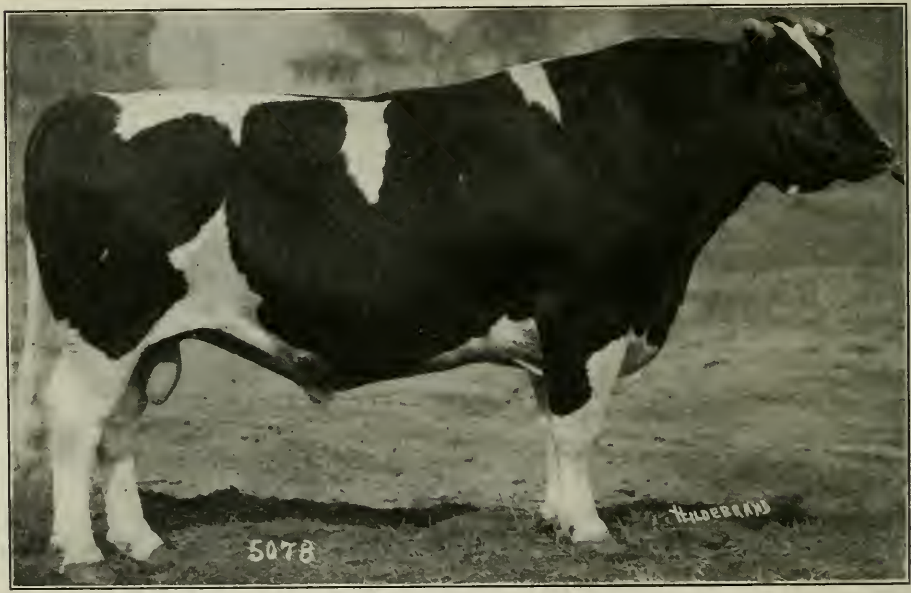
A lot of people have ceased going to the fair, their excuse being that it is the same thing each year. Get a woman or two on the board and they will of a certainty try something if not entirely new, at least new in their locality, a baby show, cooking or nursing demonstrations, school children marching and drill competition, Women's Institutes' domestic or fine arts competition, boys and girls riding and driving contests, etc. People interested bring people and so the crowd and enthusiasm are sure to grow.

A woman on the board should mean that every accommodation possible for women and children would be provided. The establishment of a nursery and a fenced-in play yard where little tots could be safely left in charge of a competent person would be much appreciated by many a tired mother. We hear people say, "Before I'd lug a baby around I'd stay at home." I claim that every care and consideration should be given the women who are willing to have babies, they deserve and need an occasional day of pleasure. There are departments in fairs over which it seems but right that women should share the responsibility of arranging the exhibits and assisting in, or doing the judging, and yet I have been at fairs where the bread, butter, jams, jellies, flowers, etc., were entirely left to man's discretion and decision. I have seen a large bread exhibit crowded into a small space, and the section for cakes almost empty—showing up flaringly the shortage in entries in the latter class. A woman would have spread out the bread and made it cover up the deficiency of cakes, for it is her delight to make a big showing and display things at their best. Avoid empty shelves if possible. There is a real art in arranging entries, and the women directors would have the privilege by virtue of holding office to suggest or act.

I fancy if women were on the board of some of the fall shows there would be more discrimination used in the selecting of the judges. When people go to the trouble and expense of getting ready and taking exhibits they have every right to expect that competent judges will be on hand to make the awards. Last fall I was requested to judge the dairy products at one of our larger shows. A gentleman well on in the seventies said when I arrived "I'm very glad to see you. for had you failed us I would have had to tackle the job, and I've no liking for it," and he might truthfully have added "or ability." One of the dairy competitors had won firsts at Toronto and Ottawa, and was in the group of spectators watching the judging. He only got 4th on his box of butter, but in talking to him he said to me "You have given good reasons; I am satisfied." The gentleman of the seventies begged me to help him with the jellies, fruits and pickles, which I did. The directors of that show evidently could not see the injustice of leaving the judging to persons who know themselves unfit for the work.

I ask no apology for making reference to our County Fair held each September in Huntingdon. It is conceded to be perhaps the best of the smaller shows of the Province. We have three women's committees, one for flowers and domestic arts, one for fancy work, and one for the dining-room. The two former committees are given charge of the prize lists covering their divisions, and make the necessary changes each year. In this way the lists are kept up-to-date. During the fair these committees are the directors over these various departments, thus relieving the men of much worry and work.

Ours is a two days' fair, people come from far and near and like to get a hot appetizing dinner on the grounds. There is a large dining-hall with well equipped kitchen and pantry, and for the past eight years the serving of meals has been under a well organized women's committee. This committee and its staff canvass the town and country and obtain donations of food or money for the "Fair Dinner" as it is called, so that there is never any lack of provisions. With the money obtained from the meal tickets much has been done to put the fair in its present satisfactory condition. To the women's efforts lies the credit of having new fences erected and painted, the kitchen fully equipped, with a hotel range, kettles, dishes of every description, water system installed, etc. This past fall this women's committee handed over to the management of the fair $800 profits from the dining room, to help to liquidate the floating debt.



Holstein champion.

During the war the ladies did this work for the Red Cross and in some years made as high as $1,100 from the dining room.

Many fall fairs by having such a committee and the proper equipment for serving meals, would find it a real stimulus to their show, for to get people interested you must get them working, and besides it would bring in what is usually urgently needed, a tidy revenue for the up-keep and extension of fair work. Be sure to have the women's names of these various committees printed in your prize list. It gives an air of importance to their work, and makes them take a greater interest in it.

REPORTS OF DISTRICT DIRECTORS.

District No. 1.

J. E. MONTGOMERY, South Mountain, Director: Last autumn the weather was so variable that several of the fairs in my district suffered from wet weather; but, on the whole, there was an improvement in exhibits, and also a large attendance. Several fairs had an aeroplane attraction which got quite a few of them out of the rut, and helped considerable in the entertainment of the guests. Improvement was shown especially in stock. Good dairy cattle were strong features of some of the fairs. The field crops were somewhat better, grain and seeds, vegetables, etc., coming up to the average. The ladies' work is also a big feature in most of the fairs and are a source of education and enjoyment to the women. A revision of the lists in this regard would be a big help to some of our exhibitions. As usual, the field crops still continue a success throughout the whole district and it would be regrettable if the improvement originated in some parts to get rid of this feature was a success. By all means let us get in line for a greater interest in our field crops. It has done inestimable good to the farming community I represent.

The school fairs are still growing in popularity and improvement is noticed all down the line, both in attendance and interest. Some societies are urging that the first day of our exhibitions be taken by the school fair. Dundas has four school fairs not excelled in the Province of Ontario.

The agricultural societies are helping the farmer. It breaks the monotony of farm labor and gives added pride to our young men in the production of prize stock. With more interest being taken each year in our fall exhibitions more help will be given agriculture which will repay many times the monetary expenditure. Taken all around District No. 1 is in a very satisfactory condition.

District No. 2.

J. L. F. SPROULE, Westbrook, Director: In making my annual report to this Association for District No. 2 I desire to say that I realize the futility of visiting a Fair or a Fair Directorate while a show is in operation owing to the fact that all the Directors are busy at this time in the management of their various departments.

For the above reason I have not visited many of the Fairs in my district excepting those in the immediate vicinity of my home and those that could be conveniently reached by motor, for these visits I am not asking this Association anything for expenses of any kind.

In making a survey of my district I find that the Fairs are not attaining the standard of efficiency that they ought, inasmuch as they fail to be progressive in the largest fields of usefulness.

Many of them do not have Standing Field Crop Competitions, which is, to my mind, very much to be regretted, for the reason that these competitions tend to standardize the various crops in competition, thus having an upward trend in the productivity of our country.

I also notice in examining the prize lists very little effort at specializing any particular department.

To-day I have the honor of having in my district the fourth largest Fair in the Province, namely, the Kingston Industrial.

The growth of this Fair in the past two or three years, has been phenomenal, until, in this present year, I find that the prizes paid will, probably, entitle this Fair to draw from the appropriations of the Department the largest sum possible, viz.: a grant of $800.

The manager and directors are very enthusiastic and have largely increased the prizes in the various departments, have engaged Departmental Judges and have endeavored to make this Fair educative as well as entertaining which I think should be the aim and objective of all Fairs.

In closing my report, and as I shall not again be a candidate for the Directorship of District No. 2, I wish to thank the delegates to this Convention for their kindness and courtesy extended to me during my term of office.

District No. 7.

John T. McElhone, R.R. 2, LaSalette, Director: I have visited Tillsonburg Fair September 16th, in the County of Oxford, Burford Fair October 1st, in the County of Brant, Simcoe Fair October 9th, in the County of Norfolk, and Windham Fair September 30th, in the same County.

I found things very satisfactory, especially in live stock. Horses had a very good show, and I found the show pens generally fairly well filled. The fruit and vegetable buildings had a very good showing considering the dry season. It gave me much pleasure when I went in the School Children's tent and found what great interest the children and the elder people were taking in the work of the little ones. I consider it a grand thing for the rising generation.

District No. 8.

R. W. McKellar, Glencoe, Director: In the district of which I am director are the Counties of Perth, Huron, Middlesex and Elgin, in which there are thirty-eight Agricultural Societies.

I visited as many Fairs as I possibly could and would have liked to have visited many more, but could not do so on account of the scarcity of help.

The Fairs which I visited I enjoyed very much and they were very educating. I found the Officers and Directors very active, and I do not think it is a good time for a Director to visit when every officer has his hands full.

The horse ring is the centre of attraction, and I have seen some grand animals on my travels; although I do not think the exhibit was as large as in former years, owing largely to the scarcity of help on the farms, also the automobile coming in and taking the place of the harness horse to a certain extent.

In cattle the classes were usually well filled, and some splendid animals were on exhibition, fit for any show ring in the Province.

In sheep and hogs there was a decided falling off, owing largely to the small prizes offered.

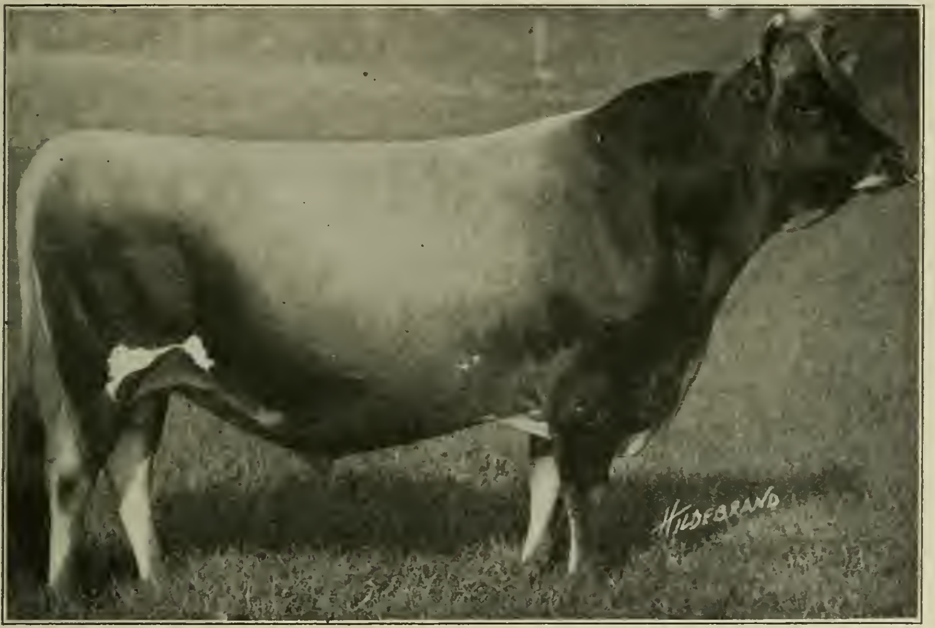
Roots, grain and fruit were not up to the standard, owing to the long spell of dry weather in this section.

The ladies' work was well represented. It is an important feature and should be encouraged.

The standing field crop competitions in these counties are doing good work and encouraging better farming and better selection of seed; also making it easier to secure good, clean seed of the best varieties of grain at reasonable prices. This year the competition will be keener than ever before, as a number who have never entered in the field crop competitions have decided to do so, and will, therefore, use more care in the selection of seed and their fields will also be better cultivated.

Another feature which is finding its way to the front at our Fairs is the judging of live stock by farmers' sons under twenty-one years of age. We tried it at the Mosa and Ekfrid Fair last year, and it proved to be very interesting as it brings the parents and friends out to see the boys compete and is very educating to all.

I would like to see every Society in the Province send delegates to the Toronto Convention. If they cannot send delegates they should at least send the affiliation fee, as there is not a Society in the Province which does not benefit in some way by this Association. Wet weather insurance, increased grants, field crop competitions were all inaugurated by this Association, which receives no grants from the Government, being kept up solely by the affiliation fee of the different Societies.



First prize Jersey.

In conclusion I wish to thank the officers and directors for their kindness and hospitality extended to me during my term of office, and hope that the year 1920 will be a banner year for the fairs of this Province.

District No. 9.

H. C. Riach, Wheatley, Director: With a number of delegates I waited upon the Kent County Council with regards an increased grant to the Agricultural Societies in Kent, which we were successful in obtaining.

I wrote the different Societies, which were in arrears to the Ontario Fairs and Exhibitions and pointed out to them the importance of affiliating with that body.

I also held a few interviews with a number of the officers of those Societies, and urged upon them to make prompt payment to the central body, also to send one or more delegates to the Convention. I also visited a number of fairs and found them doing very nicely. A great deal of the live stock in District No. 9 would compare favorably with that shown at the larger fairs.

District No. 11.

T. Rowland Hill, Hillside, Director: The weather during the summer of 1919 was unusually dry, and crops in the Districts of Muskoka, Parry Sound and Haliburton suffered in consequence. The exhibits of grain at the twenty-four Agricultural Society Fairs in these districts suffered accordingly. These Societies are so widely scattered so as to make it impossible to attend more than a few each year. The Fairs which I attended, and those from which I received reports, were better than might have been expected, considering the handicap they were under.

The exhibits of roots and potatoes for which this district is justly famous were good. As in previous years exhibits of roots, potatoes and grain from this district were in evidence at the Canadian National and Guelph Winter Fairs, and our exhibitors did not by any means come away empty handed.

The live stock exhibits at many of our Fairs are not as numerous nor are they of as good quality as one would like to see. It is encouraging, however, to notice that each year there is an improvement both in the class of stock exhibited and also in the better finish these animals have been given in preparing them for the ring.

The Field Crop Competitions are raising the general standard of our field crops, and along with the untiring efforts of our Agricultural Representative add to the interest and success of our Societies' Fairs.

The Rural School Fairs are doing a good work in educating the youth of the district in the making and preparing of exhibits, and their influence on the Agricultural Societies will be a gradually accumulative one. In some instances I believe it would be advisable to hold the Rural School Fair and Society's Fair on the same day as no doubt it is impossible for parents to attend the two Fairs when they are held separate.

District No. 12 (Eastern Division).

E. F. Stephenson, New Liskeard, Director: So far as I have been able to judge from those I visited and information available, the fairs of 1919 in this district were quite up to the average of former years.

Owing to the District and Township Fairs being so far apart in this great region I was not able to visit more than four fairs last fall, viz.: North Bay, Charlton, Englehart, and New Liskeard. About fourteen years ago the North Bay Society was suspended, but was re-organized last year, and a splendid fair was held, being creditable to all who had any part in its management.

Perhaps the best fair in all respects was the New Liskeard Fair, but this is largely owing to the large display of horticultural products by the school children of the town.

This Society held a spring seed fair which was most successful. Also, while the fair was on a short course in Agriculture was given by representatives of the Ontario Agricultural College. A similar fair and short course was given in 1918.

District No. 12 (Western Division).

James Tonkin, Fort William, Director: As Director for the Thunder Bay District, I find that as the district is so very large and our Fairs are so far away from one another by railway, it is almost impossible to attend all the Fairs. However, I visited three of them this year.

Hymers Fair is some thirty miles from Fort William. I visited it and also acted as Judge for them. Their exhibits of vegetables and grain were very good and the stock was much improved from last year. Unfortunately the weather was very wet, but the attendance was good.

I visited Oliver Township Fair which they held for two days, some 18 miles from here. It was well attended. The vegetables, grain, grasses, and the ladies' work were very good. They had a very good showing of horses and cattle, but they have not got much registered stock in this district. If we had more it would be a very great improvement to our Fall Fairs. This Fair was very largely attended by the city people. There were 150 automobiles there. The attractions and speeding in the ring helped to draw the crowd. The Fair was conducted in a good business-like manner and proved a very great success.

The West Algoma Agricultural Association held a three days' Fair and had an attendance of twenty-three thousand people. Our vegetables and grain were very good, also our ladies' work, but we are looking for a very great improvement in ladies' work during the next year as our ladies worked so hard through the war that it will take them some time to get back to normal again. We held a School Fair in connection with ours which proved a very great success. They showed some very fine exhibits.

Our attractions were speeding in the ring and baseball for three days. We had league games played there which proved a good attraction. The Royal North West Mounted Police also gave us a splendid attraction under the supervision of Inspector Dann, and the Board of Directors were very thankful for the able manner in which it was carried out.

Our chief outside attraction however, was a passenger-carrying airplane, and this drew large crowds of people, as it was the first of its kind to fly here. A number of people took flights.

We had a splendid exhibit shown by the Industrial Farm. The cattle were shown by Supt. Elliott, who has been so kind to us every year. We also have to thank Mr. W. R. Leslie, of the Plant Breeding Station of the Industral Farm, for the splendid exhibits which he has shown at the Fair every year, showing what can be grown in this district.

I did not attend Kenora Fair, as it is nearly 300 miles away, but I wrote to the Secretary, and he told me that their Fair was a very great success this year and that they are in hopes of having a very large Fair there in future years.

There was a record attendance at Rainy River Fair there being over 2,500 people, with gate receipts almost double that of last year. The live stock exhibits were not quite as good as last year along some lines, while in other lines it was better. Horses were about the same, with fewer entries in the pure-bred classes, but cattle and sheep were of a better quality with more entries. There was a good exhibit of fowl.

Owing to the floods in July the grains and grasses were very poor with practically no exhibits of sheaf grain. The roots and potatoes were very good. Vegetables were about the average and there were some nice exhibits of ever-bearing strawberries which were very good.

Exhibit at Central Canada Exhibition.

BANQUET AT THE CARLS-RITE.

This was held in the evening of February 3rd, and practically the entire Convention was present. After the banquet, Mr. L. J. C. Bull, the President of the Association, welcomed the members, expressing pleasure at the large attendance. He then referred to the address in the afternoon of Mr. Davidson, the President of the American Societies, who had told them that some sixty Societies in Illinois received a grant of $110,000. He further stated that is was the intention of the Association to ask the Farmers' Government to extend the grant to the Societies to $125.000. He also expressed disappointment at not having the Cabinet Ministers present whom they had expected.

He then asked Mr. Lockie Wilson to take charge of the programme, and act as Toastmaster for the evening.

Mr. Wilson, upon rising to extend felicitations and propose the first toast, was greeted with "For He's a Jolly Good Fellow."

J. Lockie Wilson: I am sure that we are all delighted at the attendance we are having at this the first annual banquet held by the Ontario Association of Fairs and Exhibitions in the twenty years of your existence. We have shown that we are a mighty power in the land, for you are representing, as the President has well said, the strongest men all the way down the line from Kenora where my friend Mr. Greenwood comes from down to the fine old county of Glengarry—you are representing here 250,000 paid members.

We are sorry indeed that some of the members of the Cabinet are not here to-night. They, I am sure, would be inspired if they were present, and they would say to you as farmers who understand what farmers need, that you are quite modest in your request when you are only going to ask for $125,000 for your big institution.

This banquet has been a very great success, and I am sure that you are going out from this meeting to-night feeling that you are representing one of the greatest institutions in the Province.

Mr. Wilson then proposed a toast to H. M. the King after which all joined in singing the National Anthem.

J. Lockie Wilson: We are here to-night representing the great agricultural community of Ontario, and yours is an organization that does not confine itself to the farmers alone. We have in our Societies, merchants, doctors, lawyers, mechanics and laborers all working in harmony with us. The villages, towns and cities of this Province are in entire sympathy with the work that you are engaged in, and I would ask you to fill your glasses and drink a toast to our Agricultural interests

A. M. Hunt: I live in London and am Secretary there of the Western Fair. I am putting in the time this week meeting old friends. It was my pleasure to spend about two weeks with Mr. Davidson last fall, visiting some of the large fairs in the States, down as far as Birmingham and Atlanta. We certainly had a good trip, and if time permitted I could give you a good many incidents in connection with Exhibitions and how they run them in the States. Things are done in a big way there. Mr. Davidson did not tell you that he is manager of the large Exhibition at Springfield, Ill., and the Government of the State set aside $222.000 to run his exhibition for two years. That is the way they do things on the other side. And he tells me that when the time is up they are ready to duplicate that amount for another two years. That gives you a little idea of the way they go into things there. They value their exhibition very highly, and I am glad to know that Canada is going a little more along those lines, and I am sure that the Exhibitions, as we are intending to carry them on, will be of great benefit to the live stock breeding industry of the country.

J. K. Paisley: Mr. Hunt, who had the pleasure of visiting the Chicago fair, told you what happened there. I think we have a lot of things that we could teach the Americans if they would come up and see our fairs. A good many will do so this summer, and when they do come I know there is one thing they will be pleased with, and that is with the exhibit Mr. Wilson puts up for us at Ottawa in the Horticultural Building.

I would like to extend to you all a very hearty invitation to our Exhibition and the live stock show. I assure you that anything you suggest in the way of advancing the Live Stock and Agricultural interests of this country at our Fair, will meet with our earnest consideration.

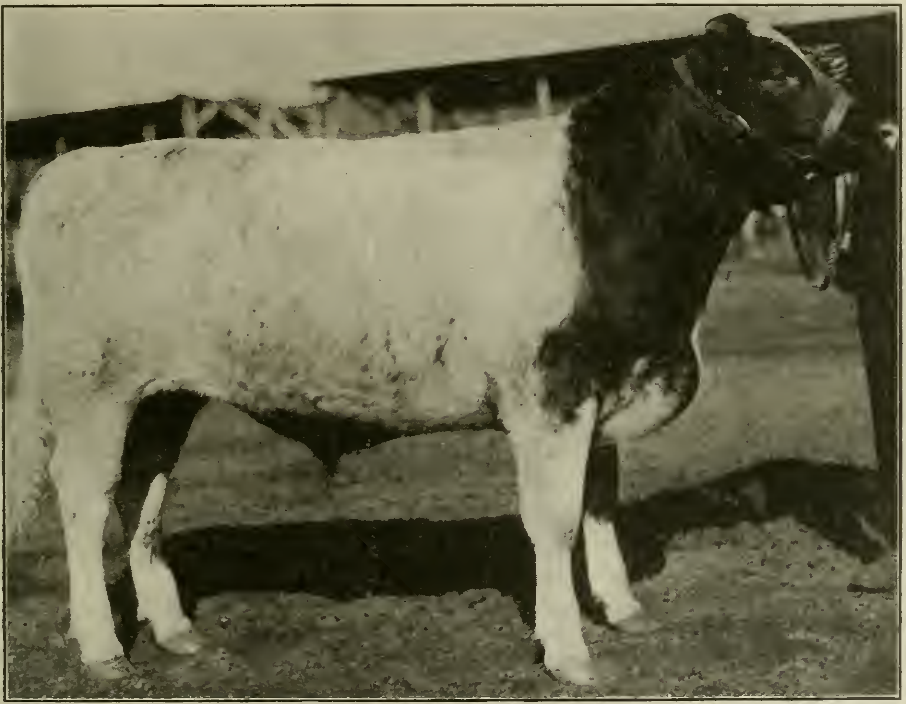
A. R. G. Smith: Ontario may well be proud of the little Fairs as the rivulets that increase the volume of the larger National Exhibitions. We are endeavoring in our modest way to improve the live stock in the Province of Ontario, and, if the national debt of Canada will be paid, as no doubt it will, from the top 6 inches of the soil, it is important that the small Agricultural Societies should receive more grants from the Provincial Government than in the past. We are endeavoring to do some instruction work with our boys and girls, and you know that there are 254,000 boys and girls, in the Province of Ontario going to rural schools. Ninety per cent. of them will complete their education there, and for that reason we are particularly anxious to give those boys and girls a chance to improve their taste in the science of agriculture. We should be very proud of our positions as Canadians. It is more to be a Canadian to-night than ever before, because men and women with clear eyes have gone forth with the sword in their hand and have defended the British Empire with their blood. It is a little over a year ago that a dark cloud hung over our Empire. So sure were the aliens of our country that the British Empire would be defeated in the struggle that they removed from their face the last trace of hypocritical loyalty and showed us what they were. But up arose the great military leader, Marshal Foch, and Lloyd George did what he promised to do—he put gun wheel to gun wheel from Switzerland to the North Sea and the enemy called for mercy. That dark cloud has now passed away, and with it the German navy, and once more and forever we can say, Britannia rules the Waves. Her noble daughters nursed and put back to the fighting line our fighting men. Our men have been triumphant on land, in the air and on the seas; the battle flags of the nations have now been furled and peace now reigns throughout our far-flung Empire.

J. Lockie Wilson: We have a place in Ontario that every man somewhat dreads, especially when he does anything wrong. When a man is told he is going to be sent down to Kingston, he feels very sore about it. In that city they have a fair called the Kingston Industrial, an institution that is growing perhaps more rapidly than any one other in the Province of Ontario, and you know why it is growing, because R. J. Bushell is running it.

R. J. Bushell: It has been said here to-night that the States spent $222,000 on the Fair in Springfield, Ill.; we can go there and learn something. The clever men from the East can learn something in Toronto at your Convention. The Canadian National is well known to-day as the finest annual exhibition. Much is to be learned there. This is the fifth Annual Convention that I have attended, and I deem it a great honor. I have been working hard for Kingston, and I regret to say that I am not supported as fully as I might be by the Board of Trade and the retail merchants of the City of Kingston.

We started five years ago without any money, the people indifferent, no support. After five years of aggressiveness on my part and that of the Board of Directors, we have increased our gate receipts from $500 to $9,000 this year, and we have to-day a substantial surplus. The Board of Directors is composed of United Farmers.

THE TOASTMASTER then proposed a toast to the Ontario Legislature, coupling therewith the names of MR. W. H. FENTON, member for North Bruce; MR. A. T. WALKER, member for South Oxford, and MR. L. W. OKE, member for East Lambton, and last but not least the stalwart for West Hastings, MR. J. K. DENYES, who was well known to a great many present.



Roan Jasper, champion steer at C.N.E.

W. H. FENTON: Out West they ask you "What part of North Bruce is Ontario in?" I am proud to-day that I am from that noted county. I am proud to say that I am a returned soldier, who has seen service in England, Ireland, Wales, Belgium, France, and Italy, and I feel it a very great honor to be a Canadian. People are very strange. They think you can make a better winter and better crops when a Farmers' Government is in power. So I ask you not to expect too much, because the Province is in a very bad state for a new Government to take over, but we are going to surprise you.

THE TOASTMASTER: I think Bruce has done itself proud in electing a gallant Canadian soldier to represent them in the Parliament of Ontario at Queen's Park. I now call on Mr. Oke, the member for Lambton.

L. W. Oke: I can assure you all it affords me a great deal of pleasure to be present at this your first annual banquet. Mr. Wilson seems to take it for granted that being on the job as long as he has everyone must cater to his bidding and do as he says. I am sorry that my superior officers are not present. I came here for the purpose of listening to them, instead of making an address myself. It is unavoidable that they are not here; I heard our Premier, Mr. Drury, say that he was called out of the city this evening. I cannot tell you why Mr. Doherty is not here. However, you all know him as a farmer.

I have been elected a farmer member of the U.F.O., and as regards the Fair work, I have been a member of our Society at Alvinston for many years. We secured our own grounds eight years ago and expended $4,000 on improvements, and I am happy to say that this year we are wiping off the mortgage, and we will be out of debt. So Alvinston Society is to the fore in that regard.

In respect to the grants which are expected by the different Societies from the Ontario Legislature, I am heartily in sympathy with that, because I know that the smaller Societies must have help. And the education that is derived from those different societies to our younger people growing up I am sure warrants the expenditure which is made by the Legislature. But as regards the increase in grant, do not ask too much. As farmers, I ask you to consider this as being a Farmers' Government, I ask you as farmers not to expect too much from it. Although we are in power at the present time, each and every one of us feels it our duty that we are representing the people of Ontario as a whole; we can give no special privileges to any particular class, and I know you don't want us to.

The Toastmaster then called on Mr. Walker, the member for South Oxford, which county he said came very near getting the International Plowing match the other day.

A. T. Walker: I want to thank the representatives of these Fair Boards for the privilege of being with you at this grand banquet. We are all interested in the Fairs, especially the small ones. A few years ago it seemed as though they were going to die a natural death, but at the present time they have revived, and there certainly is a great future for them. I firmly believe they have a place in the community life. I am proud of being a resident of South Oxford, which is spoken of as being the banner county, whatever others may think of Bruce.

The Government has its hands full and some think it up against things that they cannot surmount. But time will tell, you can generally trust a farmer to find his way out of difficulties. The general opinion and the sentiment is voiced continually that the present Government want to do what is right and fair toward everybody, and if the people will just bear with us and give us a little time I have no doubt everything will come out all right.

Regarding the grants, you have already been advised by the two former speakers what to do. As farmers we have to be economical, especially under the present stress in which the country is placed, but we will try to be fair to the Exhibition Boards.

J. K. Denyes: I am sure it is a great pleasure for me to be here to-night. I am greatly interested in the Fairs of this Province and have the honor of being president of the Belleville Fair in the County of Hastings. It has been said in the last few years that the fairs have been dying. A great many thought that perhaps they were, but I can assure you that there is a great revival in fair interest to-day. These fairs are going and they will never stop them. They are becoming not only an educational institution in the land but a great social centre, and all we need to do is to put on an attractive and splendid programme in addition to the live stock to get the people from the cities and towns to come out and bring their wives and children.

Reference was made by the former speaker to Oxford as the banner county. We think we have it in Hastings. It is a great agricultural county, especially the south half of it, and perhaps the leading county for cheese making in the Province. But we have great mineral wealth of iron, silver and gold. We have a great county. Somebody said the other day it was nearly as large as England. County Councillors and Grand Jurymen come down to the City from over 100 miles. I thank you for this opportunity of saying a few words, and I assure you as far as I am personally concerned, if the matter of increasing the grants comes up before the Legislature, I will be willing to support quite a substantial advance.

J. C. **Brown**: I am proud to speak of to-night for the organization of the U.F.O., as through its influence we have been able in the County of Middlesex to elect three members for the Provincial Legislature. If the Province of Ontario is ever to become what it was intended she should we have to develop its agricultural interests. Farming is the basic industry of the Province. That is why our farmers are working in these agricultural societies, that is why we have our agricultural societies, that is why to-day we have organized as a United Farmers' organization throughout the Province, that we might come out to the forefront, where we have never been asked by others to come. The time has come, and it has revealed to us a state of affairs that existed in our country, that we must be up and doing if we are going to be the citizens that we should be, to develop our interests. As we said here, I hope that no labor man or any other man in the Province of Ontario will ever have to accuse us of putting through class legislation. I for one feel that every interest in the Province of Ontario is so interdependent one upon the other that we must legislate for all if we are to be successful as a government. I feel in a matter of this kind that the farming class of the Province are probably getting a little swelled heads that we have accomplished so much. We said after the election that one of two things would happen, we either had too many members or we did not have enough, and as we sat there debating our position we felt it was up to us to make good or to make the attempt and if we did go down, let us go down fighting, trying to do our duty, and I believe that every man who has been elected free from the party fetters, has come there to work for the interests of this Province. I thank you.

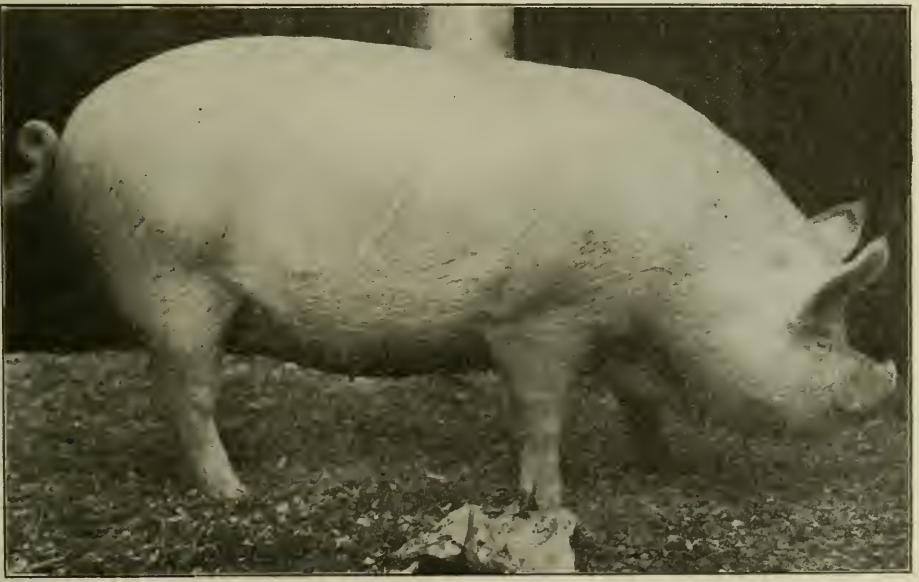
Jno. McKee: I hardly know on what grounds the Chairman selects his speakers for this occasion, unless it is that he has tried to select men of very high standing in the live stock world to reply to that toast for one thing. The live stock interests of this country are, and ought to be, the most important interest in it. Live stock is the very backbone of successful agriculture, and a very great deal indeed depends upon the development of the live stock industry of this country in the years to come, in the way of helping to carry the enormous burdens that we will have for many a long day in the future. This is the first time I have had the pleasure of attending one of your banquets, and is the first Convention I have ever attended, although I have been secretary of our fair for a good many years. I was very glad to see this afternoon stress laid upon the advisability of having lady directors. Some ten or twelve years ago when I took charge of our Exhibition at Norwich they had no lady directors. After one year's experience I came to the conclusion, if we were going to make our fairs a success, we should have some. We have now eight ladies on our Board, and I would not want to carry on a fair without their assistance.

W. B. Roadhouse: At this late hour and after the many interesting and important speeches to which we have listened, I rise with a great deal of diffidence. I am actuated in that feeling by two thoughts. In the first place, I must confess that I am impressed by this large representative and influential gathering which has assembled to-night at what we believe is the first annual banquet under the auspices of this very large and important Association. I am, however, actuated by another thought and that is an incident which happened to me within the last twenty-four hours. It so happened that I had occasion to make a few remarks in this room last night and in my introduction I referred to the fact that we were having in Toronto this week a series of farmers' parliaments, of which the meeting yesterday, your meeting to-day, the Dairy and other Associations which met during the last week, were representative, and I added that after these different farmers' parliaments finished legislating in their own behalf, we would in a short time have a session of a Farmers' Parliament in Queen's Park which would legislate for the people as a whole. My surprise and interest were aroused when I read the report in the morning paper, that *Mr. Roadhouse said that the U.F.O. was the first of a series of Farmers' Parliaments.*

However, I feel that I should convey to you personally the sincere regrets of the Minister that he is unable to be with us to-night. Several times during the past few weeks he has genuinely regretted the fact that he was unable to be in two places at once. The demands upon his time from all sections of the Province have been such as to make him wish that he could in some mystic way fulfill all the engagements and meet all the people in as short time as possible. But I think you will all realize that that is not possible, and that in the course of time he will have as opportunity offers, a chance to meet you all in various ways and talk over with you your problems which are now his, so that together you may work out the best solution and the Department may attain to the highest usefulness.

I may say, however, that the problems of the Agricultural Societies have already been receiving his attention in many ways. Don't misunderstand me, I am not pretending to say that he has authorized me to promise you the increased grant which is going to be asked for; but since it has been intimated that your Association should not ask for too much nor expect all it asks for, I am sure you will be modest in your requests and listen to a reasonable and sympathetic answer when the proper time comes.

What I refer to, however, as one of the problems which have been receiving some attention in the Department, is the problem of the Field Crop Competitions—which have grown in influence and usefulness during the past few years under the energetic guidance of the different Agricultural Societies throughout the Province. There have been some questions raised, however, as to whether these competitions were really fulfilling their purpose, and it has been suggested that they have got into a rut, that the winners each year were the same as the other year, and that something radical should be done to change around the competitions so that the prize money would not go to the same man from year to year, and the influence would be greater. If that statement was correct, it was realized that there would be need for some action, and consequently a careful examination was made of the figures for the last few years, and I thought you might be interested in the result of that examination and scrutiny. It was found that in the last three years 203 Societies out of the 350 or so in the Province had entered in this Field Crop Competition, and that of these, 127 Societies had entered in more than one crop, hence there were practically 330 competitions per year. In each competition, as you are aware, there were 7 prize winners. This means that approximately 2,310 persons shared in this prize money each year. Now then, let us see as to whether it was distributed or not. We found that only 246 shared in the prize money on three consecutive years, that 906 shared in it two years out of three. Understand, of course, that while there were that number in three years, and the larger number for two consecutive years out of three, they were in different places. The man who takes the fourth or fifth prize every year, naturally wants to continue until he has taken the first, and it is inevitable that this man should participate in the prize money to that extent for some years. We found, however, that only in 7 cases out of over 2,000 did the same man get first prize in two years out of three, and in only 88 cases did the same man get second prize in two years out of three. Remember that there were 330 competitions and 2,300 winners, and you will see the relationship of eight first prize winners and eighty-eight second prize winners in that period. It seems, therefore, that there is quite an equitable distribution, and that these competitions are stimulating the interest and the aspiration of those who enter from time to time, and to that extent are serving a real purpose of usefulness to agriculture in this Province. There is, however, possibly a need for the production and distribution of a larger quantity of commercial seed grain of the recognized best varieties, and that aspect has already been receiving the attention of the Minister as well, and I think I may say to-night that he has in mind some plans for the encouragement and promotion of seed centres with special cleaning apparatus at their disposal which should be effective in bringing this about, and when these plans are matured and are submitted to the Societies and the others interested, for their consideration, I trust that they will have your hearty co-operation. In this way



Yorkshire sow of a good kind.

the Agricultural Society will have a new vehicle to render service, and be a centre of community activity and community prosperity to the farmers whom they have been serving so well all these years.

I need hardly remind you that you have a great history and a great tradition to live up to. As many of you are no doubt aware, the first Agricultural Society was formed in the Province of Ontario in 1792. That was a historical year in the history of Canada. Not only was it memorable as the origin of the Agricultural Society, but in that year the first parliament of Upper Canada also met at old Niagara, where Agricultural Societies were born. That first parliament did two important things—one was to pass an Act providing that there should be no slavery within the Canadian boundaries, an Act which antedated the famous abolition of slavery across the line by nearly 75 years. They also passed an Act bringing into effect the jury system, which means equality before the eyes of the law for all men and conditions. These things have survived, and your organization, like the freedom and equality before the law which came into existence in this country about the same time, has survived through all the changes and vicissitudes of all the years which have elapsed, through stress and storm, through war and peace, and has come down to the present time, which is perhaps the most critical in all the history of the world. To-day it would seem that the search light of keen investigation is being thrown upon every institution, and only those institutions and organizations which measure up to a standard of reasonable efficiency will survive the analyses to which they are being subjected. It is encouraging, therefore, to know that at this time of all times the Agricultural Society is experiencing a revival, because it augurs well for the future that we will continue to have these organizations as a social centre, and as a means of education, and that is the reason why the standard of quality to which we must aim, if we would build permanently and well the agricultural and industrial fabric of the Province of Ontario, should be high. This success I can attribute solely to the fact that it has behind it the public spirited effort of the bodies of men whom you represent, and so long as there are those who will give such disinterested public service to the welfare of their province, I feel that we may look forward to the future with every hope and confidence.

W. J. Connelly: We have been encouraged by the speeches to-night in regard to the grant that we are going to ask the Government for. I think we are very moderate in what we have asked for. If we get good results, if we want cheaper foodstuff, then I think the more we scatter out and sow the more we shall reap. I would like to assure the Deputy Minister and the Members of Parliament who have spoken here to-night that if they throw it out to us in handfuls it will come back to them ten fold. I want to assure those men the grant is needed, the purchasing power of a dollar as compared with what it was six years ago is less than half.

John Farrell: Referring to the Plowing Match at Chatham last year, the speaker said: "Don't you know that we farmers down there knew that Lockie Wilson had been worked and harrassed to death, so they said 'The time has come now when you must have a holiday and here is the necessary collateral.'" You will have noticed during the day and this evening also how well and carefully our President has carried out his duties. You know in the days gone by we had a little heckling at our meetings. Those splendid past Presidents have blazed the way for our distinguished friend who presided to-day so well indeed, that it was a love feast from beginning to end.

Then there were the splendid members of the Legislature, and I never was prouder in my life than to listen to them to-night. Inexperienced, untried, but the material of the right class is in them, and they showed beyond any argument that they are well fitted for the job.

Mr. Farrell then wound up with expressions of appreciation to the proprietor of the Carls-Rite, who he said had accomplished marvels in that the banquet had been ordered for only 200, not anticipating such a large gathering, and given an extra hour, the house had provided for them all and had furnished excellent help, so that everyone had been splendidly taken care of.

W. E. Smallfield: I could have wished that the flowing melody of Mr. Farrell's words should be the last to fall upon your ears to-night. I am not a farmer or even an agriculturist, although there has been a strain of the farmer in my family for many years. Among a vast number of townsmen throughout this Province there is a great deal of sympathy with the new Government; many who did not even vote for the members of the party now in power, feel that it is a good thing, and they want the new party to have a chance. They don't want it to be harrassed, even though it would suit what we might call professional politicians to have it so. We are in a somewhat new world to-day and these men whose frankness, whose honesty of demeanor, struck home to us to-night, appeal to the townspeople very generally.

There was one point brought up by the Superintendent this afternoon, which I think was perhaps misunderstood by some. I think the director who followed him said that Mr. Wilson had attacked the midway. He attacked the immoral show and the gambling devices. I represent a Society that I think took in more gate money, received more money for its midway, and paid out a greater amount for live stock premiums, etc., than any other Society in Ontario. We took in $2,300 from our midway, that goes on to help our prize list. We look at the midway as part of what the people come for. There are no immoral shows and no gambling devices. We engage at our own expense a detective from the nearby cities. He comes, he is seen by the men of the midway. They recognize that he is there on business and they behave themselves. And I believe that the midway properly managed can be a great help to any fair.

Another point came up in the very pleasant and interesting address of Mrs. Stephen in making her plea for having ladies on the Board. She said their minds were open to new ideas. We have built up the Renfrew Fair on the plan of having a new idea every year which we could feature. In planning out your fairs you want to get that into your minds, that you want something new each year.

That leads me on to something more, and that is the relation of the fairs and the county press. Mr. Bushell has told you what Kingston has done by advertising. We take credit to ourselves in Renfrew for giving Mr. Bushell the tip. We spent over $800 on advertising this year, a good deal of it in the country press. And all over the country the press is so much in sympathy with you, that you want to cultivate it more, spend more on it. You are farmers mostly, and you have an idea that the daily press is not all it should be. That is all right, but you would do well to cultivate your country press, pay them more for advertising, and you would get a healthy country press, and more education for your country population.

After singing "Auld Lang Syne" and "God Save the King" the first annual banquet of the Ontario Association of Fairs and Exhibitions was brought to a close.

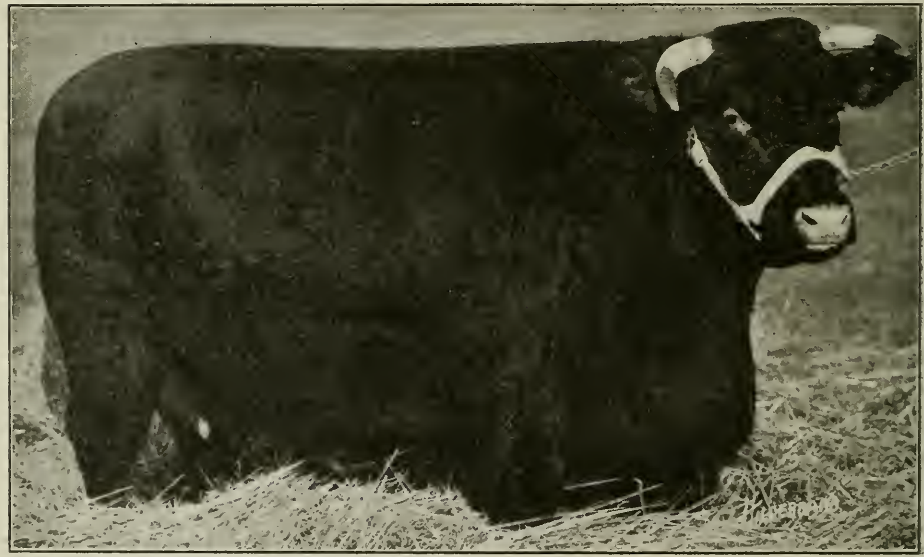
The Treasurer's report, which is given on page 6, was adopted on motion of Mr. Clarke, Goderich, seconded by Mr. John Jeffrey, Port Credit.

The election of officers resulted as on page 6.

QUESTION DRAWER.

1. At what age does a calf cease to be one?

A.—That depends upon the rules of the Society. At the Canadian National the age of calves of beef breeds is reckoned from the first of September and many of the Fairs throughout the country follow the same rule, that is, a calf born last year during September is entitled to show as a calf up till the fairs next fall. Everything born after the first of September is entitled to be shown as a calf. The rules of the Society govern. With the dairy breeds at the large fairs, they want the dairy cows to be in full milk, and they compute the age of calves from August 1st, thus allowing them to be a month older than those of the beef breeds.



Shorthorn cow of the blocky type. Note the smooth, even top.

2. Has the Society the right to prohibit a person from showing at its fair in case the person is suspected of breaking the rules of the Society in former years?

A.—A man is not guilty until he is proven to be so, and if a man is only suspected, you can do nothing with him. If he is guilty, you will have rules to apply.

3. Should the admission to fall fairs be increased?

Answered by J. Lockie Wilson: That is absolutely optional with the Board of Directors of each Society. They fix the admission. The Department or this Convention have nothing to do with that.

It was asked if the admission fee had not better be the same at all the fairs at least, to which Mr. Wilson responded that it was a matter to be left entirely with the Board of Directors of each Society.

4. Are there any present who could give any information on the erection of a fair building 70 x 30 (one story)?

ANSWERED BY J. LOCKIE WILSON: I don't think there are any delegates here who could answer that question. It is up to the Agricultural Society to adopt the style of building they want to put up. You want plenty of light, and, if you want to be economical, you will have a cement floor, which does not wear out as rapidly as wood. If you decide to build this year, you have to be prepared to pay pretty big prices, because lumber is so expensive and you require a lot of glass in those windows and glass has gone up about 300 or 400 per cent. If you can get along for another few years you might be able to build a little cheaper later on.

ORANGEVILLE MEMBER: We propose putting up a building, the lumber for which will cost $43 per thousand, delivered on the ground.

PROPOSED INCREASED GOVERNMENT GRANT.

Moved by MR. ANDERSON, Mountain, seconded by MR. NICHOLSON, Madoc.

(1) Resolved, that in the opinion of this Convention of Fairs and Exhibitions the proud position Ontario occupies to-day as an Agricultural Province is principally owing to the good work which has been done through the instrumentality of our Agricultural Societies.

(2) That while, four years ago, this Association had intended to make an appeal to the Government for an increased grant, this was not done owing to the war.

(3) That while Ontario has a larger population than the other Provinces of the Dominion, yet the Government Grants to Agricultural Societies are larger in these Provinces than in Ontario.

(4) And also working expenses having more than doubled during the past three years,

Therefore, taking the foregoing facts into consideration, and the importance of giving the utmost encouragement to those who are engaged in agricultural pursuits, this Association memorializes the Hon. the Minister of Agriculture to increase the annual grants to Agricultural Societies to $125,000 and that the President and the 1st and 2nd Vice-Presidents be a Committee to submit our request to the Minister of Agriculture. Carried.

OUR SEED SUPPLY.

GEO. H. CLARK, SEED COMMISSIONER, OTTAWA.

I learned a few minutes ago that I had been referred to as criticizing some of the expenditures in connection with Field Crop Competitions in the Province of Ontario. When I come to this meeting and begin to tell you of some of the difficulties I have in convincing our Minister and the Finance Minister that I should continue that expenditure and increase it in this Province as we are planning to in practically all the other Provinces, I am having my own difficulties in demonstrating to the satisfaction of all that the expenditure in Field Crop Competition in the Province of Ontario could not be more wisely and better spent. I would just mention this one item. I took the last Annual Report of the Agricultural Societies and looked up expenditure county by county for Field Crop Competitions. It is true that our Department provides about $15,000 for this work out of a total of $50,000 expended in all of the Provinces. The Province is expected to go 50-50 on that expenditure, so that the total will approach $30,000 in all. When we come to check up county by county, I found that Parry Sound had more than $1,000 of that $15,000; Peel County had $100; Glengarry County had $100; Grey County, $975. I asked myself whether in the Province of Ontario the Agricultural Societies are in the best position to administer that money, considering the purpose, considering the broad programme that the Federal Department of Agriculture, in co-operation with all the Provincial Departments of Agriculture, is trying to work up in the improvement of Field Crops.

We had a convention for a few days in Toronto last week, and I will give you an idea of the programme the Federal and Provincial Departments of Agriculture are trying to work out for the maximum benefit. When we go about in the Province of Ontario and the other Provinces to get a supply of seed grain we met numerous difficulties. A year ago I was desirious of buying 1,000,000 bushels of Seed Oats in Ontario. Ordinary stocks of commercial seed grain are not easy to get. What is badly needed here in this Province, as well as in the other Provinces, is a substantial supply of something that is better than ordinary stock. It is the purpose of Field Crop Competitions in all of the Provinces to create that supply, and we are willing to spend a good deal of money to get that. We recognize that Field Crop Competitions in this Province have yielded excellent results. I believe, and correctly so, that it is possible to secure even better results from the expenditure of those funds. I would ask you to consider that from the viewpoint of our Federal Department of Agriculture, in spending that money in the Province of Ontario and in all the other Provinces, we are not spending it as a grant to Agricultural Societies to help strengthen them, much as that is desirable, but we are spending that money for a very definite purpose, and it is to fit in with the programme as between Federal and Provincial Departments of Agriculture for the improvement of Field Crops. And we want to secure the maximum benefit in every township if that is practicable.

Going back to the seed supply which we had hoped would be produced as a result of the Field Crop Competitions, we are in the process of organizing centres for the production of high quality seeds of all kinds. We have some of those centres in the Province already, not as many as could be desired—centres where farmers work together in the production of registered seed or something almost as good. Naturally men who are specializing in the production of registered seed or superior quality seed must secure foundation stocks. We have plant breeders in both our Federal and Experimental Stations, and by the process of multiplying from the original plant creating a seed as pure as possible from disease and disease-resisting, expecting that in the near future our plant breeders will have large areas of land on which to multiply their foundation stock seeds and thus creating a stock supply of seed for seed centres, for men who are producing registered seed.

Men who are engaged in Field Crop Competition work ought to have stock seed for the production of the crop with which they hope to win a prize. They ought to have stock seed not inferior to that produced at the large seed centres, and I have suggested to Mr. Wilson that his Committee in connection with Field Crop Competitions should have the right to supervise the awards of judges in connection with the seeds produced. I do not think it proper for the Federal Department to go too far in making suggestions. It has been our policy rather to indicate the broad plans and purpose for which this expenditure is made.

When I saw Mr. Wilson in 1907 after the Field Crop Competitions had been under way in Western Canada for one year, about all that was indicated at that time was the nature and the amount of support which our Federal Department of Agriculture would be able to extend to the Province of Ontario and the other Provinces in organizing and conducting these Field Crop Competitions. I think I can say that our Minister is willing to continue on a 50-50 basis, if the Agricultural Societies of the Province of Ontario can so arrange the expenditure of those funds that certain counties may not be neglected and that other counties may not get the lion's share. It has occurred to me that if the Agricultural Societies in each County were to send their president as a representative and together with the Warden of the county, to form a Committee to act with the Agricultural Representative of the Department of Agriculture, they could conduct those Field Crop Competitions so that you could have one competition for each township and a larger and important competition for the county, which would take in all the prize winners who have been winning first, second or third prizes into a sweepstake competition, and let them try for the prizes in a county competition. 50 per cent. on the inspection of the field, and the other 50 per cent. on the inspection of the threshed grain ready for market.

I would further say as to the additional expenditure for that: we have men available, and I would not hesitate to send those men to the barns where the threshed grain is and go so far as to seal it in sacks, so that those of you who have grain of that kind would have an advantage in the marketing of it. It is the Provincial Department of Agriculture that works out the details of these matters, and I want to remind you again that when considering this matter, don't do so entirely from your own viewpoint. I know every man here naturally wants to retain all he has had in connection with his local Society. I want you to consider my position, when I have put up to the Deputy Minister of Finance, and the Minister, the problem of the expenditure in the Province of Ontario, when it is not being equitably distributed and only to a limited extent reaching the direct purpose for which the money is provided. I came here simply for the purpose of telling you some of my difficulties, and am appealing to you to do what is fair and just and what can be done practically to improve the conditions. It is not for me to make any comments regarding the utility value of your Agricultural Societies. It is nearly twenty years now since I was myself exhibiting at the Annual Fall Fairs. I look back on those fall fairs with some of the brightest recollections that I have of my early days at home on the farm. I simply ask you to take into consideration ways and means that can be adopted to get the most benefit of the dollars that may be provided for Field Crop Competitions.

W. J. **Connelly**, Cobden: I am glad that Mr. Clark gave us to understand that we are not going to be cut off from our Dominion grant, that we are even going to get larger grants. This is the way it should be, because, as I told you last night, a dollar does not go as far now as it did some years ago. In fact, $15,000 five or six years ago would purchase as much as $30.000 to-day. If we are going to have more production and better production we have got to have better seed. And I am glad that the Province of Ontario is leading in the Field Crop Competitions, because I believe that the Field Crop Competitions are the very foundation of getting better seed, more production, and better foodstuff. I remember some years ago when I was a boy that I used to hear my father say the three most beautiful things were: a nice young lady, well dressed; the second one, a ship in full sail; and the third nicest was a beautiful field of wheat. If you would ask me to-day what are the three most useful things in the world, I would reply: that a lady was the most useful thing in the world. I could not have said that a few years ago as the ladies had not their franchise then. Now man comes second. I would give a beautiful field of wheat the third place.

One of R. R. Ness' champion Ayrshires.

I would like to draw Mr. Clark's attention to one statement that he made, and it seems to me that he has the wrong impression as to how this money is distributed through the Province. He went on to say some counties were getting $100 and some $1,000. That is the small end of the question. It is not how much money a county gets, but how much good grain seed we are getting into a county. After all, the scripture is true, that a little leaven will leaven the whole lump, and so the good seed is spreading more that way from one county to another.

Mr. Clark suggests that he will send judges out, first to judge the grain in the field, and after the grain is in the barn that he will again send judges to the barn to judge your grain. When we take into consideration that in the Province of Ontario we have some 8,000 competitors, just imagine the situation. I don't think that the $15,000 that we are getting from the Dominion Government would pay those judges to go around to all those barns.

But that is not the big question that I see in this thing. It would take a long time until the judges got around, and the farmer would not know whether he was getting first, second or third prize. He would want to sell the grain, and could not wait for the judge to come.

However, I am glad that Mr. Clark made the statement that he did not believe in making too many suggestions for the Province, because I believe the people at home in our own municipalities know better what is best for our community.

I am glad Mr. Clark is going to give us $15,000; in fact, I think he is going to give us $30,000. I think the Federal Government is beginning to realize the importance of our work. The Government of a country is a good deal like a Jersey cow I have at home. Three things seem to do her good and get the best of which she is capable: one is to speak kindly to her; the second, we have got to handle her gently, and the third is that we have got to milk her regularly. It does that cow a lot of good to get rid of that milk, and it dces us good to get it. Nothing will do the Federal Government and the Provincial Government as much good as to get rid of some of this money for seed grain, and us so much good as to get it.

A Member: At our last annual meeting the suggestion was made that the judges when going around making their awards would act on the principle adopted by the Department of Education, and that the non-successful exhibitors be given a statement of the judge's findings, so that he might know wherein he lacked. I think that if a suggestion along this line from the Superintendent were handed to the Judges it would be a good thing.

Wm. Scarf: Two years ago I was appointed on a Committee to find out what grain and roots were best adapted for these Field Crop Competitions and try to standardize those varieties. We met and did the best we could to select those varieties. We met Mr. Clark a few days ago and we had a discussion then. Mr. Clark thinks he is not getting enough for the money that the Government is spending in this Province. I think no money could be put to any better use by any Government than that which is being given to the Agricultural Societies. Since I have come here fifteen years ago I have gone on every delegation to Queen's Park, sometimes we got something, sometimes we did not. Mr. Clark can go back to Ottawa and tell them that there is no money better spent than that spent on the Field Crop Competitions in Ontario. I have just had a talk with a County Councillor from the County of Grey. They gave $3,000 from that County to their Agricultural Society. Mr. Clark says that that county had cost the Department over $900 in prize money. Don't you think when that county turned around and gave that $3,000 of a grant they appreciated the money they got from Ottawa. Mr. Clark can go back to Ottawa and tell them that Grey County Council has given this to their Societies.

A. R. G. Smith: How does the activity of the Field Crop Competitions in Ontario compare with that of the other Provinces?

G. H. Clark: Practically all of the Provinces except Saskatchewan are using as in Ontario all the money that is available to them. In nearly all the other Provinces their Agricultural Societies are organized in a way so that only one Agricultural Society is available to a municipality. Here in Ontario you have as many as twenty Agricultural Societies to a county, in others only two or three.

A. R. G. Smith: How would the fund be administered?

G. H. Clark: I made the suggestion that the President of each Agricultural Society, together with the Warden of the County, and the Agricultural Representative of the County form a Committee, organize the competition together with a sweepstakes competition, with one standing competition and a threshed grain competition, and I offered to supply the judges to inspect the threshed grain in the barns.

J. Lockie Wilson: I did not understand until now that the Agricultural Societies were not supposed to be administering this fund properly. The grant is $50. The Agricultural Society puts up $25 in addition. The rules governing the competitions and the prize money are sent to each Society. There has been no diversion of these funds given to Societies. I venture to say there has not been an instance of such, and I believe the Agricultural Societies are in a better position to administer that money than any other body. We have been going forward with leaps and bounds, and Mr. Clark himself will admit that we have made faster progress than other countries. When he returned from Europe, where he had looked into the grain question of Belgium, France, Italy, Great Britain, etc., he came to my office. I said, "I am glad to see you Mr. Clark, and I would like to get some pointers from you for the Field Crop Competitions." He said "I have no pointers from Europe on Field Crop Competitions. Ontario leads in this work." We know that these Field Crop Competitions are only in their infancy in Ontario. Only 170 Societies out of 365 take part in them, and if you go cutting into it now you will wreck the Field Crop Competitions in Ontario. There has been more seed distributed through these Field Crop Competitions than ever there was in the hundred years of the past since Agricultural Societies existed in this Country.

Is it the opinion of this Convention and the farmers of Ontario that the Standing Field Crop Competitions would be better conducted by a Warden of a County, the local President of an Agricultural Society and a District Representative than by the efficient staff of the Ontario Department of Agriculture, who have always worked in harmony and in the best interests of the Societies in the Province? It requires some skill for the arranging of all the details connected with this work, the appointing and sending out of 150 judges, the distribution of grants amounting to $25,000, and the preparing and editing of the full report of this work that has done so much for the growing and distributing of high-class seed grain in Ontario. The officials of the Department of Agriculture are paid by the Government for this work. Can you name me one warden of a county or president of a local Society who could devote his time to doing this work unpaid, and, if they are to be paid and are willing to act, who would provide the funds and the necessary stenographic service in connection therewith?

A. R. Ascough: There seems to be an opinion among the farmers of this country that at Ottawa the Dominion Department of Agriculture is in an unfortunate position—that the other departments think there is no need of it. I am sorry that Mr. Clark has done something to-day to strengthen that impression. It is unfortunate that that impression is there. We, as farmers, think that in Ottawa they consider the Department of Agriculture an unessential Department. As an officer of the Dominion Government I don't think Mr. Clark should spread this impression.

J. Lockie Wilson: A delegate brought up the question of judges not giving sufficient reasons, in order to be of educative value, as to the non-winning of a prize, or *vice-versa*. Time did not always permit: the judges were being hurried from one place to another because of fields becoming over-ripe, and farmers waiting to cut them. A list is published in the Appendix to the Agricultural Societies' Report of all competitors who scored 70 points and over.

JAS. McLEAN: As one of the judges, we try to give all the information we can. Very often the farmers are busy; sometimes they cannot go through the field with us, but we always invite them, and in that way we can point out to them their scores, and wherein they failed or succeeded. As regards the seed supply that Mr. Clark has spoken of, in our own Society, Richmond Hill, one farmer who got first sold every bit of his grain in York County and buys cheaper seed for the stock on his farm.

A MEMBER: The judges in the Field Crop Competitions leave the scores with the Secretary of the Society. Competitors can get the score if they want it from him.

THE CHAIRMAN: And where possible the judge tells those who win as well as those who lose where they fall down.

J. LOCKIE WILSON: I would like the opinion of this meeting as to whether it is deemed advisable to have the grain judged in the field, and the prizes withheld until such time as the grain is threshed in the granary and another judge then sent to judge the threshed grain in January or February, and then when the scores are put together—that from the field crop and from the grains—the total is arrived at and the prizes at that late date awarded. I want to be of assistance to Mr. Clark in every possible way, but I am of opinion it would not work. (General "No" from all over the house.)

WM. HICKSON: Our seed is distributed all over our own county shortly after the awards are made in the fall. You could not possibly hold fall wheat until February as it is used in September.

G. H. CLARK: I would like to learn whether it would be the will of the men that are here to meet the greatest difficulty that I have in attempting to organize a county organization of the Societies that exist in that county to carry on the Field Crop Competitions within that county. I agree that for the township competitions, holding the grain in the granary to be judged after threshing, would not be practicable; but when you come to the organization of the county competition, with greater prize money, for which we are willing, if it can be organized, to provide more money, I can see no reason why the judging of the field and of the threshed grain in the granaries is not practicable. I venture to say that I could inspect all the grain that would be in the granaries for less than $15,000. The biggest difficulty that I have in getting money for Field Crop Competitions is where you have twenty Agricultural Societies in some counties and only two or three in others.

L. J. C. BULL: One suggestion that Mr. Clark has made is that the president of a local Agricultural Society, the agricultural representative, and the warden compose such a committee. I think many of you realize that the warden in many a County Council would not know the difference between oats and barley.

Moved by H. A. NICHOLLS, Richmond Hill, seconded by WM. SCARF, Toronto, That the Federal grants to the Field Crop Competitions be continued and that the Dominion Minister of Agriculture be memorialized to increase the grants therefor, and any reduction in such grants would meet with the disapproval of the Agricultural Societies of this Province and that the system now in vogue be continued. Carried unanimously.

At the Judges' Short Course, Guelph.

J. Lockie Wilson: To be perfectly fair to Mr. Clark there was no intimation on his part that there should be a reduction in the grant. Mr. Clark is anxious to do the best he can to further this work. Perhaps he has not had the same opportunities that some of us have had of watching the Field Crop Competitions, and the Directors are willing to accept from time to time any suggestions tending toward improvement of the Field Crop Competitions.

THE PURPOSE OF THE AGRICULTURAL EXHIBITION.

Prof. Barton, Macdonald College, Que.

My only reason for appearing on this platform to make any remark in regard to the Agricultural Exhibitions—I have in mind more particularly the smaller ones—is simply this, that I have always been more or less intimately identified with agricultural exhibitions in and out of Ontario. That is my justification for appearing here. I come in contact with Fair Boards very considerably. I have had a chance to see something of their work and a chance to appreciate what an agency they are for good, and I don't think their value can be endorsed too strongly. If there are fairs that merit some criticism it is not because of the organization or the purpose for which they were designed.

Now, I plan in my few remarks to raise this question: what is the purpose of the Agricultural Exhibition? I sometimes think in going from fair to fair that the Fair Boards are not putting that question to themselves as strongly as they might. And I do not care what activity a man is engaged in—it is a wise thing to ask himself occasionally, "Where am I getting to? What is the purpose of what I am doing?" I believe if we have our objective definitely settled that we are apt to steer a much different course than if we have only a hazy conception of where or what it is. That explains probably some of the stagnation and disappointment. Now, I want to measure the Agricultural Exhibition—the first purpose is education.

If we stop to analyze some of the exhibitions we will have to hunt for educational motives. An agricultural exhibition ought to be an incentive, ought to give impetus, and a small fair ought to be an inspiration. I got my first live stock inspiration at our county fair.

The three principal purposes to my mind that the agricultural fair is intended for are these: for education, for service and incentive to the individual and the community, but also as a medium of social intercourse. I believe it is an outing that is part of its purpose.

Ask yourself the question when you go to a fair what educational purpose has it? Has there been progress there? The agricultural fair ought to be a leader, a guiding star in the county, and it ought to be right up to the minute in everything. Take one little detail, the prize list. Compare it to-day with what it was twenty-five years ago, or even ten years ago, and contrast it. It is not an uncommon thing for me to go to a fair and be handed a prize list and see on the cover of it a picture that has been there for a great many years. Now, if there is a picture on a prize list at all, there must be some reason for it. Then I turn over the first page and I see there perhaps the first thing, "Durham Cattle." That is a common thing. I have no objection to the Durham cattle, but what does it signify with regard to the progressiveness of that fair? You won't hear anyone at a Shorthorn convention talk about Durham cattle.

You have heard a lot here about grain to-day, and you have had your interest aroused in it, but I want to tell you that the last analysis of the grain crop is the dairy cow. You have some specific information here in Ontario which tells the tale in regard to live stock better than I can tell you. You need only read Leitch's Survey Bulletin to find out what the real factor in live stock is.

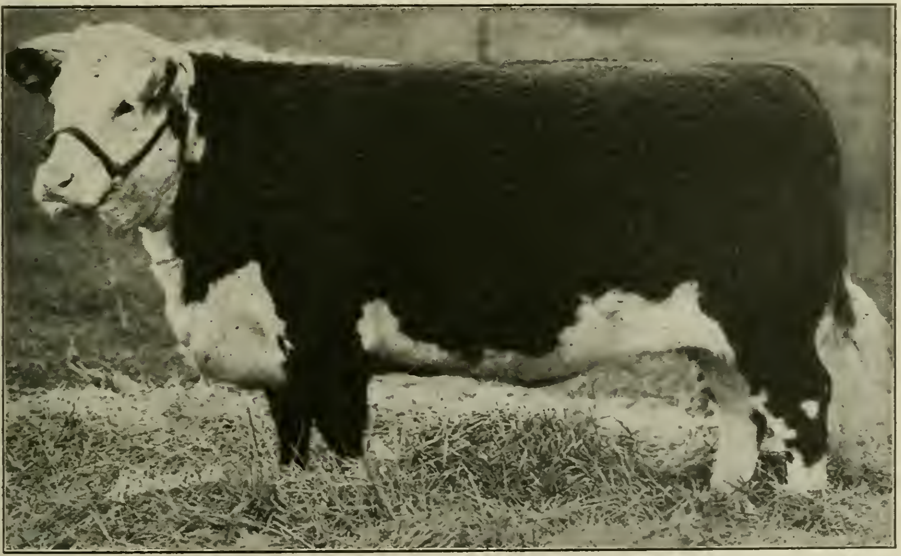
Now, in the live stock end of it: are we making as much from an educational point of view, in our policy with live stock at our fairs, as we might well do? If this live stock question means so much to farming as that bulletin shows, what can we credit our fair with doing in your county, in my county, for the young breeders and for the young chap who is getting his first interest, as I did some time ago?

I have a few suggestions to make: There are a lot of special prizes given at different fairs, but it seems to me that too often these things resolve themselves into a mere transaction when they could be used for a specific purpose from an educational point of view. Take the question of fitness, the best fitted calf. There are a lot of calves rejected because of fitness; but condition is not the whole thing. Too many overdo it. I am strong for showing an animal at its best, and while I know what fitting means—the extra work, the cost—there is one thing that I would like to see a little advancement in. Even if you start only in the smallest way with the calf, do not allow a man to put it in some show where his "brother-in-law is going to get it without competition." That is not good for the fair, and by it we will lose inspiration. It is deplorable how little the average man knows about properly showing an animal. There is a means of education that our boys ought to get. It comes back to the same principle—of getting the best there is out of a ring. The last time I came to Toronto I had the time of my life to get the cattle placed so that I could size them up. Compare ourselves with the old country people and we are miles behind. They would not think of taking an animal out without showing him for all he is worth. Driving, hitching—if you like—there is something that ought to be featured.

Now, I come to a still more important point, and that is the judging end of it. I am familiar with some of the progress you have made here, for I think in the movement to organize an Expert Judge system as carried out in Ontario here you have made a tremendous step in advance. I want to congratulate Mr. Wilson on the results secured. But still at the same time I want to indulge in a little criticism too. I do not believe our judges are a fine enough stamp. This is the crux of the whole business. Just as soon as you make some progress in the county, as soon as you have men coming to a county who are going to raise better stock and who are going to fit them for exhibition, you must have better men to judge their stock. I would like to see our judges improved 100 per cent. I hardly know how that can be accomplished, but I would like to see them put on a much higher plane than they are now. I know the viewpoint of the exhibitor, and I know the difficulties of getting a judge who will go in and do work that will command respect and confidence. In looking over last year's report I was very much interested in reading some remarks Mr. Miller made here. That is real instructive work. It is easy to see how work will be useless if we have one man coming one year, and another another year to judge cattle and each doing different work.

There is a demand for reasons. It is a harder matter to judge and give reasons than it is to judge. We have many judges who can do pretty good work as judges, but they find it hard to give reasons. I would go very carefully on that score. Instead of expecting so many reasons from a judge, have him select a class and ask him to analyze that class. I have had many boys come to me after analyzing a class and tell me some things that I had said and that had impressed them and they had taken it home and it had guided them in selecting their stock for the next year. Don't hurry your judges. Even if a judge has to miss his train he should give his judging ample time.

Now, about a Judging Competition. I don't know of any more valuable feature that can be supported in any fair than a judging competition, but it must be done right. It is with the young people that the possibility lies for the best work, and if we even turned our fairs right around and made 50 per cent. of the fairs for the young people altogether, I don't believe it would be a bad thing to do at this very time, and we would get an interest that we are not getting now.



Hereford cow of excellent quality.

About provisions for judging: What education is there in bringing a pig to a fair and judging it in a wagon box with a top on it, and a chain at each end? That is not uncommon at our best fairs, and you still find it at many of them. The fair that has any provision for judging hogs is rather the exception than the rule. Why should we not have provision for suitably judging them? In judging work, and in the arrangement of the fair, it is not run for exhibitors exclusively. Too often we are carried away with that view. The exhibitors are often prominent men among the directors. The visitor is the man we ought to run it for first, and the exhibitor second, and pig judging ought to be done in such a way as to give the visitor the best opportunity for education and entertainment that we can possibly give him. There was a little crate given in the *Breeders' Gazette* the other week for judging pigs, which would not cost $5 to put up.

I believe that what applies to live stock will apply to every other feature of the agricultural fair if we will just sit down and study it.

I am not going to say much about the social end of the fair. The biggest attraction from a social standpoint that any fair can be is being a good fair. If it is a good fair you will have a good attendance. The automobile is going to be a big factor in the fair from this standpoint. Have all the novelty features clean and wholesome.

The incentive factor of it I have already dwelt upon. There is just one more thought: If you want anything to be an incentive there has to be enthusiasm. If we can't develop any enthusiasm in our directors it is going to be pretty hard to develop enthusiasm in any of those attending the fair.

REPORT ON REVISION OF PRIZE LISTS.

Miss M. V. Powell, Whitby.

This has been a year of unusual history making, and we meet to-day under circumstances of exceptional opportunities for service. With the vision of the future, let us go forward.

Never before have we so thoroughly appreciated the heritage handed down to us by our yeomen fathers, the pioneer farmers of this country, men who have ever stood as uncrowned kings in our land.

We all have joined the ranks of the farmers to-day, in the endeavor to hold and to keep unimpaired our great heritage, proud as never before to be citizens of this fair Canada.

To help "carry on," we, of the Fairs and Exhibitions Association are convened to make our agricultural fairs of greater value and interest to the farmer, that when we assemble at our fall fairs, we may add to two outstanding features of community life, the social development of the countryside, and the educational value of our contested exhibits not only in the way of field crops and live stock, but also along the lines of Home Economics and the development of child talent, giving attention to Needlecraft, Art and the many things that make home attractive and prepare our men and women of the future for the more serious problems of life, that when they go out to meet the world, they may do so as bravely and fearlessly as our new Premier is doing.

In drawing your attention to what the Women's Department of Fairs and Exhibitions has done this year, we do so hoping thus to aid our Minister and our Government in their effort to help us through this Department.

The revision of prize lists has been one of the features of the work. In taking this up, it has not been done without a careful study of local needs and conditions, consideration of the financial possibilities of the individual society so far as these conditions could be ascertained, and with an intellectual view to the best means of serving the Society and its interests.

Since entering upon the work in March, 1919, up to the time of the holding of the fall fairs, we prepared lists for 85 Societies in different parts of the Province, giving special attention to Needlecraft, Domestic Science and Art, and in nearly every instance where these lists were adopted the result has been most satisfactory.

From one of these revisions comes this report by the Departmental Judge, "This Society had used the list prepared by Miss Powell, and I found an improvement in the exhibits, much of the old work being left out. The new list was the means of bringing out the largest exhibit of Fancy Work I had ever judged. In some sections there was good competition, with from ten to fifteen entries, and in others up to twenty-five, and a fine quality of work. I was informed by the officer in charge, that the exhibits were done largely by local workers."

Another reports, "The style, quality and arrangement of the Ladies' Work at this fair is greatly improved through the revision of the list. The work is modern, in good taste and the exhibits more numerous than last year."

From another Society: "This fair has taken on new life. Exhibits were larger than for five years, and the quality good. Old work not in evidence. It is wonderful the improvement in the Ladies' Work."

The aims and object of the supervision of this Department, in the revision of Prize Lists are:

1st. A greater degree of perfection in the exhibits, or a higher standard of excellence in the quality of the work exhibited.

2nd. To attract more widespread interest, thereby gaining a larger number of exhibitors.

3rd. To make the displays of greater educational value to the community.

4th. To secure greater variety of work with higher standards of workmanship.

5th. To stimulate dormant interests.

Some of the means of attaining our object are:

1st. To provide adequate space for exhibits and facilities for attractive arrangement.

2nd. To support distinctive classes for professional and amateur workers wherever practicable.

3rd. To provide a standard for the exhibitors, that fair competition may be featured.

4th. To secure qualified conscientious judgment.

This involves certain obligations upon the Society, the exhibitor and the judge:

1st. On the part of the Society:

Interest in the Ladies' Department as being of real value to the fair, and co-operation with a carefully selected committee of ladies.

Clean, sanitary, rainproof building or tents and, if financial conditions will permit, cases for the Dairy and Domestic Science exhibits.

Substantial awards in all Ladies' Work, in accordance with the financial standing of the Society.

A stated time for receiving and placing of exhibits, and adherence to that rule.

Proper classification, and competent judges.

2nd. On the part of the exhibitors:

Careful study of the premium list that all entries may meet the requirements set forth, and thus avoid the necessity of the judge disallowing good work owing to improper classification.

Taste and interest in the preparation of exhibits. Soiled, defaced or carelessly arranged work should not be considered.

Honest compliance with the principles of fair competition.

Readiness to accept defeat in good spirit, with the determination to improve, rather than resenting the judgment or becoming discouraged because of failure to win awards.

3rd. On the part of the judges:

Knowledge of, and adherence to, the regulations and instructions of the Society.

Careful, intelligent examination of each exhibit before passing judgment.

Familiarity with the various styles of work to be judged, and a fixed standard or ideal to be attained.

Ability to sustain honest, conscientious judgment, and withstand interested influence.

It is a natural conclusion that with the revision of lists, there may be more or less decrease in the number of exhibits for a year or possibly two until the worker adjusts herself to the change, realizes that the progressive Society does not encourage the display of time worn exhibits, and is able to prepare new and attractive work.

Until such time as this can be done, and modern work developed, which we believe will ultimately be for the betterment of the Societies and higher standards of fairs in general, it would be helpful if the Society could prepare for the possible falling off of exhibits, by securing small loans and private displays as attractions. Also the development of special features, such as, fancy floats featuring some incident of agricultural life; decorated cars; school drills; practical demonstration booths or stalls; model kitchen and equipment; labor saving devices, etc. offering as the award, a short course in Domestic Science or Agricultural work. Such feature to be open to members of Farmers' Clubs, Women's Institutes and other similar organizations, the Club or Branch winning the award to elect one of their number to take the Course, and impart the information received to the Club or Branch upon the completion of the Course.

We are pleased to find a number of Societies introducing special attractions for the Ladies' and Children's Departments, and these have proven of value and interest in bringing out large and excellent exhibits of quality in various lines of work.

It would be unwise to debar the "professional" exhibitor from our fairs. She is of great value educationally, especially she who sustains the "ideal" conveyed by the title, and presents only fresh designs, skill of workmanship, and attractive display. Rather let us make provision for the two classes of workers, allowing the "amateur" the privilege of competing with the "professional", so-called, as many of our home workers are capable of doing as good work, sometimes excelling the "professional," but oftentimes are not so closely in touch with the progress and development of modern crafts; therefore, the skill and ideas displayed by the "professional" worker are of much value to the "amateur" who might otherwise find difficulty in modernizing her work.

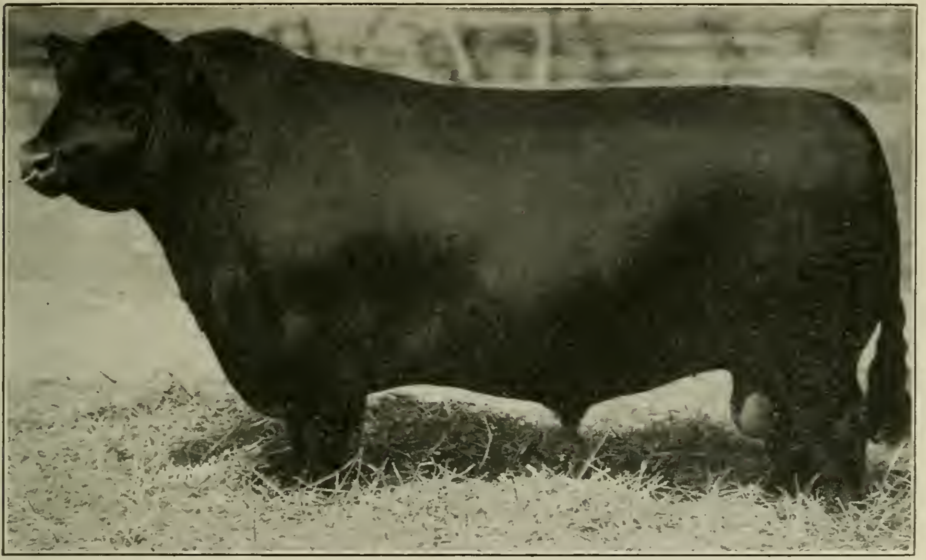
The question may arise here, as to what constitutes "professional." A "professional" shall be known as one whose main or special business is the teaching, making or selling for profit the articles or work named in the "professional" classifications, or one who makes a practice of shipping her wares to the Secretary or other officer, to place on exhibit, re-pack, and return to the owner with the money award she may be entitled to receive.

An "amateur" shall be known as a home worker, one who does not teach or sell for profit her handiwork, or any of the work named in classifications other than "professional."

In connection with the Fall Fairs of 1919, there were 150 Societies which employed the services of the Departmental lady judges.

These ladies were supplied with report forms through which means we were able to learn of the standard of the Ladies Department in the different Societies, the style, grade, quantity and arrangement of the various classes, and wherein was the strength or weakness of each.

Of this number we have received reports from 141, with the pleasing information that 23 were of especially good standard generally, 73 good, 32 average and only 10 really poor.



An Aberdeen-Angus that should produce good stock.

Of 52 reports on Dairy products, 4 were very large, 12 of especially good quality, and 2 very poor, while a number of Societies had no Dairy exhibits.

Of 121 reports on Ladies' Work, only 7 were of poor quality, 24 small in number of exhibits, 18 were very good and others ranked average in both quality and numbers.

The Domestic Science and Art Departments require development both as to quality and number of exhibits in possibly a greater degree than other lines of Ladies' Work. The home preparation of fruits, vegetables and other relishes should be encouraged to a greater degree and more attention given to the Domestic Science Department in general, while there is ample room for educational work in the Art section.

Personal letters have been written to at least 50 Societies, drawing attention to that branch of the Ladies' Work which requires special encouragement, or which has made an exceptional showing in 1919, with the hope that the fair of 1920 will bring increased interest in these lines.

We are pleased to report that through the effort and solicitude of our Superintendent, Mr. Wilson, the Minister of Agriculture, the Honorable Mr. Henry, was good enough to grant the holding of a two days' "Short Course for the Uniformity of Judging" for the ladies of the Departmental staff during 1919.

This Course was held in August, during the Canadian National Exhibition, and proved an unqualified success. Of a staff of 65, some 50 judges were present at the opening meeting of the Conference and the interest was keen throughout the entire Course.

"Classification of Exhibits, Necessity for Uniformity of Judging, Score Cards and Tests" were among the points studied, which we hope in the near future will be of definite benefit to the Societies.

We feel that this Course was a step in the right direction, as up to the present time our lady judges have had no fixed standard or ideal in most departments.

A resolution was passed expressive of the pleasure and benefits derived from the Conference, with the request that the Departmental lady judges be granted the assistance of Short Course work, as an annual event, also a resolution asking that a scale of points be prepared by the Department in the form of Score Cards to be used by the Judges, in the different lines of Ladies' Work, that there may be a uniform standard of judgment. The thorough equipment of the judges for the work in which they are engaged cannot but result in higher standards in all Ladies' Department work, and the response to the study Course fully justified its establishment.

There are a few points in some of the lists to which we should like to call attention:

1st. The omission of sectional numbers.

2nd. Poor classification of work. For instance, under Domestic Manufacture we find the following:

Sec 1. Dairy Products. Sec. 2. Horse blanket. Sec. 3. Lumber wagon. Sec. 4. Maple syrup. Sec. 5. Layer cake. Sec. 6. Embroidered centre piece.

This means confusion, loss of time and unattractiveness.

3rd. Proportionate awards, for example:

Half dozen tea biscuits, $1.00. Pair home-made blankets, 75c.

Another: Oil painting, figure, darning with white on black, six yards of rag carpet, all equal award without consideration of labor or intrinsic value of the exhibit.

Again: 50 lbs. butter, $2.00 and $1.00, and 2 lbs. butter, $1.50 and $1.00. The labor involved in the first instance, aside from the market value of the exhibit, would deter many exhibitors in view of the slight difference in the awards.

One Society offers $25 in awards for exhibits of furniture, stoves, harness, etc., and $2 for all Domestic Science classes.

Another $45 for quilts of different styles, and $3.60 for all Domestic Science work.

One might go on indefinitely with these features, but these will be sufficient for our purpose, and we will speak of only one or two other points.

Collections frequently call for 6, 8 or 10 varieties of fruits, jellies, etc. We have yet to find a list which calls for 8 or 10 varieties of grain in one exhibit. With individual entries ten women may make exhibit, while with a collection of 8 or ten, many might be debarred from the contest.

The other point is the prevalence of the Society being used as an advertising medium for companies or merchants, to the possible detriment of the Society.

For instance, we find in one list, one quart sealer of fruit, award 5 lbs. tea, value $3.75. One apple pie, named brand of tea, $1.50. The Society offers 50 cents as second award.

In some instances we find "specials" offered in baking sections, the exhibit to be made with a special brand of baking powder, a can of which must be shown with each exhibit. As a general rule the officers of any Society are pleased to have the merchants take an interest in the fall fair, and will gladly make provision for display space for those who may desire to use this means of giving publicity to their special line of business.

The average Society is not overburdened with funds, and any expenditure that is contemplated, would be helpful if used to encourage some Branch of agricultural interest.

A large number of lists have already been forwarded to us for revision for 1920, and also several requests for suggestions and ideas for development of this Department.

It is obvious that one standard list for all Agricultural Societies would not be satisfactory, as conditions are so varied. For illustration, one Society offers $525 in the Ladies' Department, another $400 and another $25, while the style of work is almost as varied. At the same time good work may be developed in all sections of the Province if special attention is given to the individual interests.

New interest is being aroused in the Ladies' Department of Fairs and Exhibitions, and under careful supervision from this Branch of the Department of Agriculture, we foresee a bright future, and assured efficiency and advance in the Arts and Crafts.

We would suggest introducing special features as previously mentioned, the conducting of judging contests in Dairy and Domestic Science, and the providing of Score Cards to be attached to the exhibits in these sections, to be used by the judges, as educational work. Also that films be secured of any exhibits especially well developed, or the reverse, for general educational work in the Department.

With the co-operation of the exhibitors, officers, judges and the Department, we feel assured that the Agricultural Fall Fairs and Exhibitions of the Province of Ontario, will occupy a place in the agricultural life and development of the country, not excelled by any organization on the continent.

INTERPRETATION OF VARIOUS TERMS USED IN PRIZE LISTS.—Unless otherwise stated on the list: "Specimen" shall mean a finished article. "Display" shall mean three completed articles or pieces. "Collection" shall mean not less than six, not more than 12 pieces. "Set" shall mean each article the same pattern or design of work. "Pair" shall mean two alike.

SUGGESTIONS.—That premium tickets should have space for exhibitor's number, also for class and section numbers, to be filled in by the judges when making awards, thus avoiding the possibility of exchange or loss of ticket from the article awarded the premium.

All exhibits in Ladies' work to be the work of the exhibitor or exhibitor's family.

Only one article or specimen to be shown in any section unless otherwise stated.

Articles not listed in any classification will be accepted for display as specials, and will be awarded ribbons, but no cash prizes.

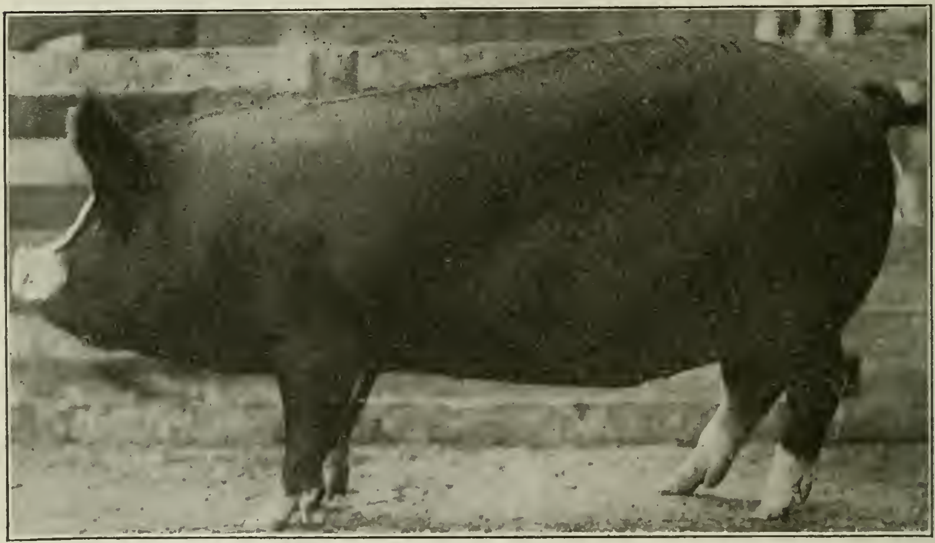
Wherever possible, the judges to fill and attach score cards to the exhibits, showing the points won by the exhibitor.

It was here moved by W. J. Connelly, seconded by W. S. Scarf, "That this Convention appreciates the good work done by Miss M. V. Powell, the Lady Fall Fair Specialist, appointed a year ago, and we feel that no mistake was made in recommending her appointment to this position, and hope that the good work commenced will be continued." Carried.

RURAL SCHOOL FAIRS IN CONJUNCTION WITH AGRICULTURAL SOCIETIES' FAIRS.

R. S. Duncan, Supervisor, Agricultural Representatives.

Before launching into a discussion of Rural School Fairs in conjunction with Fall Fairs, held under the auspices of the Agricultural Societies, I wish to briefly deal with the formation, organization, management and conducting of School Fairs, in order that you may have some idea of the magnitude of this movement and some of the objects we have in view.



Berkshire sow.

The first Rural School Fair in Ontario, if not in the Dominion, was organized in Waterloo County in the year 1909 with three schools taking part and only 58 pupils making exhibits. In 1912, they were adopted as a general policy of the Department of Agriculture and have grown until in 1919 there were 357 Rural School Fairs, embracing 3,278 schools with 78,946 pupils taking part. It is estimated that in 1909 about 250 people saw the first fair, whereas last year, 92,600 pupils and 107,590 adults attended the fairs. This is truly a remarkable growth. Sufficient seed of potatoes, oats, barley, wheat, corn, roots, vegetables and flowers were distributed in the spring of the year to plant 69,848 plots on the home farm, and 11,045 pupils each received one dozen eggs of a bred-to-lay strain of Barred Plymouth Rocks. Instructions accompany the seeds and eggs distributed, and the boys and girls are encouraged to care for their crops and chickens and exhibit the products at a fair to be held in the fall of the year.

Special care has always been taken to distribute the best seed obtainable. Agricultural Representatives have been shown whole fields of grain and potatoes during the past few years which had as their origin the small package of seed distributed to the pupils of the schools some three or four years ago. The value, therefore, of the School Fair work in the distribution of pure seed cannot be overestimated.

HOW A SCHOOL IS ORGANIZED.

Each School Fair, comprising on the average nine schools, is managed by a Rural School Fair Association, which is composed of representatives from each school, who are elected by ballot from among the pupils. The accredited delegates from each school meet and elect their own officers consisting of a President, Vice-President, Secretary and Treasurer and a Board of Directors. This general Fair Board, under the supervision or guidance of the Agricultural Representative, has charge of the management of the School Fair of the district. The School Fair officers meet perhaps two or three times during the season to discuss in a business-like way the prize list and matters pertaining to the welfare of the fair. Special duties are assigned each officer and director and their assistance is of untold value. The Secretary keeps a record of all minutes, correspondence and items of general interest. The Treasurer usually opens a bank account in the name of the Rural School Fair Association and cheques are signed by the Treasurer and President.

FINANCING THE SCHOOL FAIR.

Practically all the expenses in connection with School Fair work, with the exception of the prize money, are paid by the Ontario Department of Agriculture. The amount required for prizes for each fair varies from $60 to $125, the average being possibly $75. This money must be raised locally. The Secretary of the School Fair Association writes to all the trustee boards in the district asking for a grant from $5 to $10. A special committee is appointed to wait on the Township Council. These boys and girls submit their plans and ask for a grant from $15 to $30. The County Council and public spirited persons also contribute towards the prize list. I think you will agree with me that the boys and girls receive a splendid training in business which will stand them in good stead in years to come.

FAIR DAY.

The School Fair is a "red letter" day for the pupils. It is usually held in the most central place in the district, and generally at a school and because of these facts it is termed a School Fair. A tent 30 ft. by 50 ft. or other suitable building is used in which to house the exhibits. There is no midway or counter attraction.

The classes of exhibits at the fairs may be summed up as follows:—

1. Products from home plots from seed distributed.
2. Poultry and live stock.
3. Collection of nature objects, such as mounted weeds and flowers, weed seeds, insects and the work of plant diseases and insects.
4. Collections of fruit.

5. Manual Training and Household Science work, such as cooking and sewing.
6. Educational work including essays, maps, drawing, writing, art, etc.
7. Miscellaneous and contests of various kinds.

Competitions in which the boys and girls enter keenly are always an important feature on School Fair Day. The school parade is very attractive and inspiring. An exhibition of physical drill, under the Strathcona Trust Fund, is particularly pleasing to the spectators. These school contests stir up a friendly rivalry, show the number of pupils interested in the School Fair movement and develop gracefulness and proper carriage in the pupils. Other competitive features are a programme of sports, a live stock judging competition for teams of three boys from each school, a girls' sewing and darning contest, apple and weed naming, solo singing, public speaking and riding and driving contests, which are all keenly contested by both boys and girls. All these contests are educational in value.

JUDGES.

The judges are usually supplied by the Department and consist of either the Agricultural Representative from the adjoining county or district, or a graduate or undergraduate of the Ontario Agricultural College, who has had some special training for this work and a man qualified to judge poultry from a utility standpoint. These are the only two judges paid by the Department. In addition to these judges, the Agricultural Representative usually arranges to secure a lady judge through the local Women's Institute to judge the girls' work, such as baking, sewing and flowers and the Public School Inspector invariably judges the writing, drawing, art and essays.

As an educational feature and object lesson, opportunity is given the judges to explain the reasons why a certain exhibit is placed over another. The desirable type in vegetables and what constitutes quality are explained in order that the pupils may have a better conception of the standard by which such exhibits are judged. Hints or suggestions are given in the preparation of exhibits and these talks are decidedly educational in value.

The attendance for each fair in the Province varies from 200 to 2,000, the average being perhaps 600.

From the foregoing, you will gather then that the School Fair is designed to prepare the boy and the girl for the farm. The boy of to-day will be the farmer of to-morrow.

The teachers, inspectors, trustees and parents co-operate in a whole-hearted manner and are a very big factor in making the fairs so successful not only from the social, but from the educational standpoint as well.

The Department of Agriculture has always insisted in the past that School Fairs must be held separate from Agricultural Societies' Fairs, so that there would be no danger of them losing their identity, and that other attractions would not overshadow or detract from the usual programme of the School Fair. I believe a goodly number of people shared the opinion that School Fairs would interfere with the success of the Township or County Fairs. While the attendance at some School Fairs far exceeded that at the Township Fair, I believe I voice the sentiments of a great many people when I say that the School Fair will eventually prove a boon to the small agricultural society, due to the fact that the children as a result of the inspiration and training received at the School Fair become exhibitors at the larger Agricultural Society Fair. In other words, School Fairs act as feeders to the larger fairs.

I think you will agree with me that where School Fairs have been held in conjunction with other fairs the pupils' exhibits attracted a great deal of attention and admiration, though I am quite sure the interest maintained by the pupils themselves is nothing in comparison with the enthusiasm shown at the School Fair, where they have the privilege and responsibility of conducting the fair themselves.

During the past two or three years there has been considerable agitation on the part of the Directors of the Agricultural Societies for the School Fairs and the Fairs held under the auspices of the Agricultural Societies to unite in holding one fair. The claim was put forth that it would strengthen the Fall Fair and swell their gate receipts, which I am free to admit, and that it would overcome the duplication of effort and work on the part of the local people.

The Department feels that the School Fair and the Agricultural Society each have a separate and distinctive field of work, and that the School Fair can only accomplish its work in developing the young mind along agricultural lines by retaining a separate organization and individuality. At the same time, it is recognized there may be a number of cases where the School Fair and the Agricultural Society could co-operate more than at present with advantage to themselves and the community. Looking at the matter from this standpoint consideration has been given to the question of arriving at a working basis in the limited number of cases referred to. In this consideration a conference of five or six Agricultural Representatives was held, at which the Agricultural Commissioner, the Superintendent of Agricultural Societies and myself were present. We discussed very fully the wisdom of Rural School Fair Associations and Agricultural Societies joining in holding their annual fairs. One condition emphasized very strongly was the advisability of maintaining the identity of the School Fairs. For the sake of the pupils we did not want their interests jeopardized in any way.

A Holstein with a good milk record.

AGREEMENT.

In order that Rural School Fairs and Fall Fairs held under the auspices of the Agricultural Societies may be conducted jointly this Committee suggest that the following conditions be complied with.

1. PRIZE LIST.—That the list of classes for the Rural School Fair, prepared by the Agricultural Representative and the Rural School Fair Association, be included in the regular prize list of the Agricultural Society.

That one copy of this prize list be distributed to each pupil or one copy to each family or household in the Rural School Fair Association.

That the prize list be issued not later than June 1st.

2. FINANCES.—That the Agricultural Society supply half the prize money, such sum not to exceed $75.00 for these classes and that this sum be paid over to the Manager or Secretary of the Rural School Fair Association prior to the Fair.

3. ACCOMMODATION.—That the Agricultural Society supply suitable buildings or tent accommodation for displaying the pupils' exhibits, together with tables and poultry coops and have same in readiness on the morning of the Fair.

That suitable field accommodation properly enclosed be definitely assigned to the Rural School Fair for the purpose of holding sports, parades, judging of live stock, etc.

4. ADMISSION.—That all the pupils and teachers in the schools taking part in the Rural School Fair be given free admission to the Fair.

5. JUDGES.—That the Agricultural Society supply judges for exhibits such as poultry, live stock, vegetables, grains, etc., satisfactory to the Department.

6. PROTECTION (Constables).—That the Agricultural Society supply protection for Rural School Fair exhibits.

It is not to be expected for one moment that all Agricultural Societies will unite with the Rural School Fairs in holding a joint Fair. It is not feasible nor desirable in many instances, and perhaps the plan will be opposed by a number of the representatives of Agricultural Societies present to-day. Furthermore, the conducting of joint fairs in some townships where the Agricultural Society Fair is a large fair and where it has become well established would not be in the best interests of the School Fair. Where, however, the Agricultural Society Fair is a small one, perhaps a union of the two might be tried out with considerable success.

The foregoing expresses the view of the Department of Agriculture, and is merely a definite plan as to the conditions which must be complied with when School Fairs and Agricultural Society Fairs are conducted jointly.

C. M. TROTT, Mt. Brydges: I take a great interest in our fair, and we tried joining the School Fair with ours last year, and it was a success. We had a parade and it certainly was a credit to any community. I never saw a horse race as interesting as this parade was. We had boys not over 14 years of age judging cattle. Only one boy in the whole ring did not place the first prize on the proper animal. The small Societies are the backbone of our country and are the ones who are bringing up the agricultural boys. There should be some way of arranging that Societies who only pay out say $300 or $400 should receive an extra grant.

C. O'REILLY: Last year we gave a special prize to young men under twenty judging stock at these fairs, and twenty entered, and did successful work, according to the judges who went over it.

H. DARWIN: The Society I represent here to-day held a school fair in connection with our agricultural one. It certainly was a good thing, and was a great stimulus to our fair, but it cost us about $300. It was, however, money well spent. The boys and girls had their own officers.

MR. STODDARD: A School Fair is one of the greatest assets that an Agricultural Fair can have. Last year we gave inducements for the schools in the rural districts to come in and offer prizes. We have competitions, and it is one of the greatest educational lines of work get the boys interested in the judging competitions that are being put on at different school fairs. It is certainly an education to the young boys, and it has a tendency to induce them to take a greater interest in live stock and that is one of the principal purposes of our Agricultural Fairs.

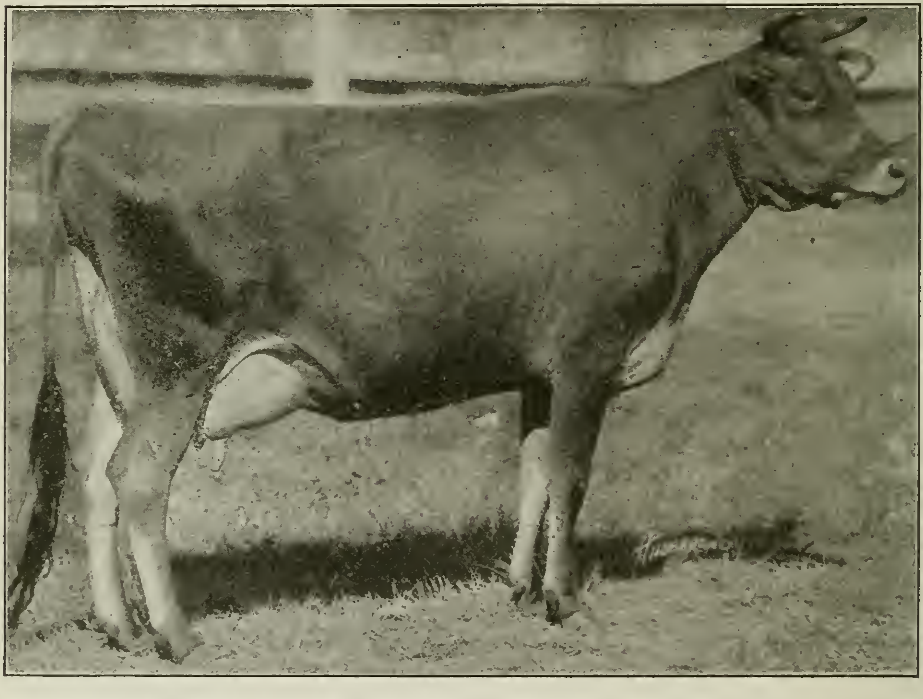
MR. COPELAND, St. Mary's: For the last four years we have held our School Fair in connection with the fall exhibition. The school prize list is printed in April for which we have a committee appointed consisting of the ladies of the Women's Institute, and the school teachers from three different schools. We send a number of copies to each school and the teachers send them out to homes. Then we embody that list in our prize list in the fall. We find it a great benefit to the fair. We also have a school children's parade, with a $5 prize for the school that comes the longest distance and is the best dressed. That is one of the novel features of St. Mary's Fair—the school children's parade. The children all come in free. We find it an inducement for bringing the adults.

JOHN JEFFERY, Prince Albert: We have been trying to have school fairs with our Agricultural Fair for years. I have eight boys, and have to attend the school fair. Our Society in Port Perry finds it a difficult matter to run our fair profitably with the funds we have been getting. This year and for two or three years we have had to run an account with the bank and a few of us have had to be responsible for that. That is not very pleasant, but when I come to a meeting like this it puts new vim into a person.

WM. HICKSON: We have had experience with school fairs for a number of years. The first two were held in conjunction with our fall fair. The results were very good. then we got notice that we would not be allowed to hold the school fair in conjunction with our fall fair, and, of course, we had to comply. Next year our School Fairs throughout the district were run by the Department here. Since then we have allowed the School Fair to go its way and we have gone ours, with the result that the School Fair is almost dead, while we are still alive. We have all the children who exhibit at the School Fair also exhibiting at our Fall Fair. With the outline that Mr. Duncan has just given us, we will have to eliminate a lot in our prize list. It is a good idea because we must co-operate. One will help the other. Mr. Hickson here asked for suggestions as to what day of the Agricultural Fair would be the best day to hold the School Fair on, to which Mr. Duncan responded that that was a local problem.

JOHN FARRELL: I do not quite agree with a number of those present with regard to those fall fairs. I visited Mr. Darvel's fair, and as far as the local fair is concerned it has very few equals, and I don't think is excelled by any. I was at a fair in Petrolia, and you know that fair has conducted its business along its own lines. But this last year or two it has been associated with the School Fair. If the object of the School Fair is to increase the interest in the county fair, you have accomplished that work when you have amalgamated. On the other hand, if the intention of the School Fair when it was originally organized was for the benefit of educating the youth, you have made a mistake. At Jericho at the School Fair they had their own officers and directors and took full control of the affair. And on the morning programme, they would ask the grown-ups to do so and so, and the whole thing was splendidly managed by the boys. The afternoon programme was entirely in their hands, with supervision, and the entire part of the work was absolutely controlled by those boys and girls.

At Alvinston what attracted my attention was that when I went into that large building (the School Fair possessed the largest part of it) in the afternoon when the band played and the sports went on, the boys and girls were not there; they were out among the crowds, and the instruction that they were to get and the educational feature was lost. In days gone by, when the man took his boy and left him on the field at the work and never associated him with any business, what was the result when sometimes the father was suddenly called off? The boy did not know how to handle things and everything went back. But when the father who associated his boys with his business was called away, business went on just the same. These are the comparisons. You say what effect is it going to have on the District Fair? In those districts where school fairs are well organized and brought up to a splendid standard, what do directors do in order to get good results. They say to those School Fairs: Here is $25 or $30 for the best school exhibit. Those boys and girls take their best exhibit, and they go to the county or district fair. You know this, those of you who have a two days' fair. The first day is preparation day. The father and mother are going out the next day, and are they going to come out the first day to see the boys' and girls' demonstration? Then on the other hand, as I have already demon-



One of the butter-producing kind from the Brampton herd.

strated to you, when the show is so big and the attractions so great, children-like, they want to run off and have the best there is. I am not antagonistic to any fairs. I have visited every fair in the district, but I stand here in defence of the splendid school fair that has an object, and if you amalgamate with the fall fair the initiative for the children is lost. You can, after the school fair is over, offer a prize at your county fair for the best school exhibit, and this would link the two together.

A. R. G. Smith: We have tried to strike a happy medium in the County of Waterloo. The Agricultural Society has introduced four features which I think have been interesting to the youngsters without taking too much time. We have twenty schools; each has a competition. Each school can offer $7.50. Besides that we have a Judging Competition for five classes of animals, the prize given for that was $25, and last year owing to the generosity of a gentleman who gave us a $50 cup, we gave that for a permanent possession. Besides that we have the driving and riding contests for boys and girls.

Moved by Wm. Hickson, seconded by H. Darvel, "That this Association endorses the plan, where possible and agreeable to all parties in the locality, that School Fairs be held in conjunction with County Fairs." Carried unanimously.

L. J. C. Bull: One feature which has not been touched on, is important. There are in these days many things in which the growing boy is interested and which take his time, but detract from his lessons and from his home life—there are the Boy Scouts, and everyone will admit they are doing good work. The School Fair is doing a good work. The Y.M.C.A. are doing good work. In connection with the schools, there is hockey, lacrosse and the different sports. I feel that one of the greatest evils we have to contend with is the multiplicity of institutions interfering with home life and the education of boys. I think the school fairs and township fairs, if held together, will save much valuable time. Let the children have their own part, but do not multiply the offices.

THE VEGETABLE SECTION IN FALL FAIR PRIZE LISTS SHOULD BE REVISED.

A. H. MacLennan, Vegetable Specialist, Toronto.

This is a topic in which I am very much interested, because during judging trips of considerable length in different parts of the Province I could see that many of the lists could be made of much greater value if they were radically changed. To my mind the exhibit of vegetables at Fall Fairs should be largely for the educational value and not so much for the amount of the prize. They should be of value not only to the producer of the article shown but also to the general public who hope to receive some benefit therefrom in the quality of the vegetables supplied them. To the producer it should mean that it is a sample of the general run of his crop. For this reason it would be much better to include in this list only the vegetables common to the vicinity and in season, to some extent, at the period when the fair is held. For this reason plants like peppers, egg plant, sweet potatoes and even watermelons could not be listed in many sections as they are plants which require special attention for their growth and are not commonly grown in all parts of the Province. Plants like rhubarb and asparagus should not be included unless as a canned product because they are far from their best at fair time, especially if we follow out the ideas mentioned before.

In some prize lists we find a large number of classes under one vegetable. One prize list that I noted had eleven classes of potatoes where three would have done. Here in Ontario we are trying to standardize the potato crop, and we have cut down the recommended varieties to three. Irish Cobbler for early and Green Mountain and Rural New Yorker for late. We desire to bring the crop of potatoes in Ontario to such a high standard that they can compete successfully with New Brunswick in car load lots. For this reason why is it necessary to put on our prize lists names of varieties like Eureka, Rural Blush, Beauty of Hebron, Farmer's Favourite, and more especially that one commonly seen of "any other variety correctly named." One prize list mentioned white potatoes and colored potatoes; another listed early and late. In another case we have a collection of potatoes mentioned "not to exceed 15 distinct varieties, each named." We find Eureka and Irish Cobbler mentioned in the same list; these are the same potatoes under a different name. Again we have Delaware, Green Mountain and Carmen No. 1; these all belong to the same type.

Take another vegetable—celery. We have red mentioned and we have pink. This refers to the same, and there is no demand for it on the market. For this reason it should not have a place on the list. If we mentioned only Golden Self Blanching for early and Winter Queen for late we would be doing all that is necessary.

Another is Long Beets. These do not sell on the market and are not of as high a quality as a rule as the Turnip Rooted Beet. The Detroit Red variety alone would fill the bill much better.

Then again in tomatoes I find varieties such as Stone and Imperial in one particular prize list; the Stone tomato has never proved satisfactory in any part of the Province, for while it is a nice shaped tomato and has a good color it is far too late in ripening to be of any value. It is not nearly as good a variety as either John Baer or Bonny Best or even the old Chalk's Jewel, so why should it be listed? The Imperial tomato is one of the older varieties which has largely passed out of use. It was never a good variety for show use or home consumption. If you want a pink use Livingstone's Globe.

In another place we have mentioned, "Three of the largest cucumbers." Would it not be better to offer prizes for Slicing and Picklers, as these are the two that are commonly used? The large green cucumber when the seeds are fully developed is absolutely useless from the consumption standpoint. If it were ripe it could be used as a preserve but not otherwise.

By cutting down your vegetable list to a large extent the extra money could be applied to the value of the prizes. This would tend to draw a larger number of exhibitors, and that is what makes the show a success. Of course, there would be a tendency for certain men who are known as professional exhibitors to enter, but if the rules of the show were strictly adhered to you could have very little competition from such men unless they really were growers, and in this case they have a perfect right to show at as many fairs as they desire.

There is a class that I would like to see made of more value; that is the collection. This might be divided into two sections; one for the farm and the other for the town garden. The prizes given should be made worth while. The number of vegetables to be shown should be mentioned and should be limited to a comparatively small number and the prize given to the one who has shown the best taste in displaying and for the highest market value. It should be judged entirely from the display and consumption standpoint.

I note in looking through your rules two very important ones which I think should be included in every prize list. The first one is as follows: "Grain, Fruit, Vegetables and Dairy Products must have been grown, raised or manufactured by the Exhibitor during the current year and must be entered in the name of the *bona fide* owner." If this rule is strictly adhered to, and in any case of dispute the exhibitor made to take oath as to having produced the article exhibited, I think you would have very little trouble from the professional exhibitor who was not the actual grower. The second is: "Exhibitors will not be allowed to place their exhibits." One of the biggest difficulties in judging at the present time is the tendency of many exhibitors to stand close to where the judge is working and, while not actually interfering, the moment the judge is through they go over and start talking about it. It would be far better for the good will of everybody concerned if no one was allowed to loiter anywhere near the exhibits while the judge is working. Where there are a number of entries and the competition is close it is practically impossible for the judge to do good work if he is being watched at every move. If the exhibitor does not agree with the judge's work the only time to talk is after the judging is done when they can both talk it over to their mutual benefit.

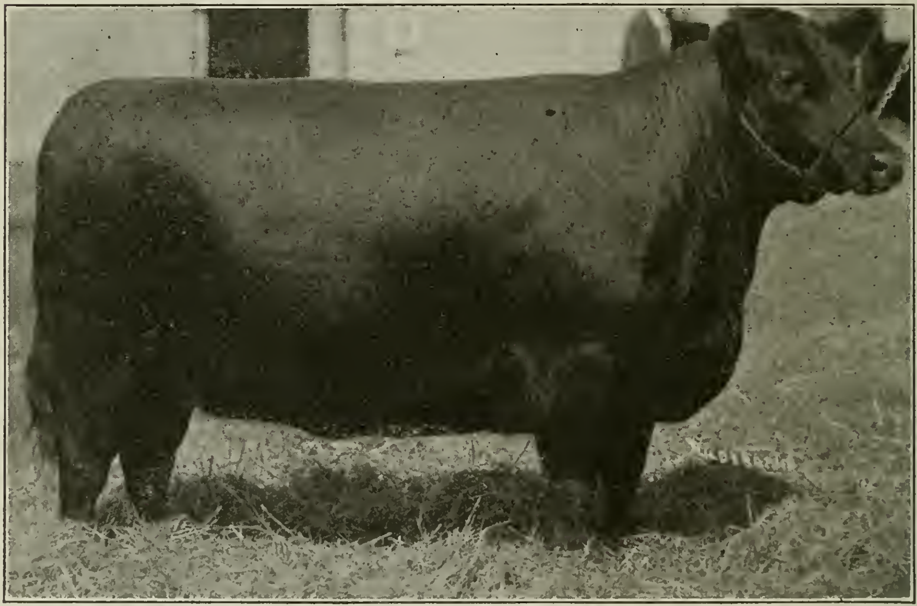
The last thing I would like to make mention of, is that the judge employed should be a man who knows the common varieties and their distinctive markings. In Bulletin 270 we have tried to show the standard of vegetables in picture form and there is no reason why the man should not know the distinctions, although I have often been with men who are good judges but whose knowledge of varieties was very weak.

I am attaching to this a list of the standard varieties in each type of vegetable which may be used for the compilation of a list.

Artichoke	Red or White.
Beans	Yellow—Golden; Green—Giant Stringless.
Beets	Flat Egyptian, Detroit Dark Red.
Brussels Sprouts	Dalkeith.
Cabbage	Jersey Wakefield, Copenhagen Market, Glory of Enkhuizen, Danish Ball Head, Chester Savoy, Red Rock.
Carrots	Chantenay, Danvers.
Cauliflower	Snowball.
Celery	Paris Golden, Winter Queen.
Citron	Colorado Preserving.
Corn	Golden Bantam, Stowell's Evergreen.
Cucumber	Improved Long Green, Chicago Pickling.
Egg plant	Black Beauty.
Endive	Moss Curled.
Horse Radish	Bohemian.
Kale	Dwarf Scotch.
Kohl Rabi	Purple, Green.
Lettuce	Grand Rapids, Nonpareil, Big Boston.
Muskmelons	Osage, Giles, Sugar Sweet.
Onion	Southport Yellow Globe, Extra Early Red, Danvers Yellow Globe, Silver Skin, Barletta, White Welsh, Egyptian, Prizetaker.
Parsley	Champion Moss Curled.
Parsnip	Hollow Crown.
Peas	Thomas Laxton.
Peppers	Ruby King, Chinese Giant, Hamilton Market.
Potatoes	Irish Cobbler, Rural New Yorker, Green Mountain.
Pumpkin	Connecticut Field.

Radish	Scarlet White Tip Turnip, China Rose, White Chinese, Round Black Spanish.
Rhubarb	Victoria.
Salsify	Mammoth Sandwich Island.
Spinach	Viroflay.
Squash	Green Hubbard, Golden Hubbard, Boston Marrow. Vegetable Marrow, Bush and English Marrows.
Swiss Chard	Silver.
Tomato	Earliana, John Baer, Bonny Best, Chalks Jewel. Livingston's Globe.
Turnip	Golden Ball, Swede.
Watermelon	Coles Early.

A MEMBER: What would be the benefit derived from putting on two classes of vegetables—one grown in the country and one in town?



A compact "doddy."

A. H. MACLENNAN: The town man has a lot more time than the farmer. He has the water right at hand and has more manure. You need not have separate classes, but the keener the competition, the better.

A DELEGATE: Where do you place the Irish Cobbler as a potato?

A. H. MACLENNAN: As an early variety.

A MEMBER: Why is it that they are shown with late potatoes in the Field Crop Competition?

A. H. MACLENNAN: The Irish Cobbler is an early potato. There were only three varieties of potatoes now recommended—the Irish Cobbler as the early variety, while the late ones are the Green Mountain, which takes in the Delaware, Carman No. 1 and Gold Coin, and the Rural New Yorker.

IMPROVEMENT OF FAIR BUILDINGS.

A. P. MacVannel, Picton.

The improvement of Fair Buildings is a subject which is always before the Directors of every Agricultural Society in Ontario, and the condition and adequacy of the buildings is an important factor in the success of any Fair. Very few, if any, Societies have more buildings than are required and the Society which I represent is in the same position. Our Directors have been making additions to and changes in buildings for the last thirty years, and are planning many changes for the coming years.

Some of us have learned that you cannot have a successful Fair without suitable buildings, and these must meet the requirements of the district. I have come here to bring before you certain changes, additions and improvements that we have made in connection with the buildings on our plant—not to tell you that a certain type of building is essential or necessary for you, because Fair buildings to be model buildings must fit local conditions. You must consider the nature and the extent of exhibits and the amount of room required.

In a general way, the buildings should be suitable for the requirements of the Society and of the exhibits. It is not sufficient that the buildings should be large and well-constructed. Each building should be supplied with an abundance of windows, also properly arranged tables for the exhibits and the convenience of exhibitors.

The Main Building, or Palace, usually the largest and most generally visited by all who attend the Fair, and usually including the largest number of exhibits of Domestic Science and Art, Flowers, School Work, should have plenty of light and conveniently arranged tables and stands for exhibits. Especial attention should be devoted to the protection of perishable products, *i.e.*, cooking, butter, cheese, dressed poultry. Visitors to the fair never complain that they see the same articles in these sections, though they are brought back year after year. These articles represent the best there is in genuine farm products. Why not make these sections stronger? We have found that, since the introduction of refrigerators with glass fronts for perishable articles such as butter and dressed poultry and glass show cases for cooking, competition has increased and it has added much to the attractiveness of the exhibits. A refrigerator is very simple to construct, and consists of an ice-box between attractively arranged shelves of glass, with provision made for the circulation of air. The front of the box is, of course, of glass, and is arranged to cover two sides and the end of the domestic section. This refrigerator is 12 feet long by 12 inches wide, and was built at a cost of about $50. A few dollars will cover the cost of ice each season.

The Live Stock buildings, including especially the Horse Barns and the Cattle Barns, should be large and roomy with abundance of light and ventilation. For small District Fairs covered sheds with open sides are possibly most suitable for Hogs and Sheep.

There should also be separate buildings for Vegetables. Roots and Seeds, for Poultry, and in districts where Fruit is plentiful, a special building should be provided. Our Society has utilized large tents for exhibits. A tent is very satisfactory for staging School Fair exhibits, but when exhibits are to occupy the same place for two or more days, a tent is not satisfactory. It is difficult to keep it in position, and the exhibits become disarranged and slovenly.

Too much emphasis can not be placed on the advantages of light and ventilation in every building. It may be argued that too much light adds to the heat or discomfort, especially on hot days. It has also been suggested that too much light injures the perishable articles, but this may be overcome by whitewashing the entire building on the interior; this does away with the heat of the sun. As a matter of fact, it is an excellent practice to whitewash all buildings each year previous to the Fair.

The greatest improvement in buildings can be brought about by the attractiveness of the buildings. It is not sufficient to keep the buildings in good repair so far as roofing, siding, replacing glass and other repairs are concerned, but Fair buildings should be regularly painted. Previous to 1914 our Society was in the habit of painting the front fence annually. Owing to the high prices and the scarcity of labor this matter has been neglected. We have come to the conclusion that, even with the high cost of materials and labor, it is good business and adds much to the attractiveness to paint at least some of them annually.

Other features which add to the attractiveness of the buildings, especially to all the buildings where exhibits are in place is the placing of evergreens around the doors and the posts of the girders. The expense does not amount to a very great deal, and it adds considerably to the attractiveness.

Fair buildings are also much improved by having a flagpole and a flag floating during the Fair. We have found it also good policy to have small flags hung all over the building.

Improvements in Fair buildings may be classified also as conveniences for visitors. I do not know of any one feature in connection with the exhibits that will encourage progress for a Society more than to have a large following of regular visitors and exhibitors. Suitable sleeping accommodation for stockmen and attendants, and a good dining-room service is especially desirable. In 1914 our Society built, with contributions from the Old Boys' Association a combined Ladies' Rest Room and Dining Room. This building is equipped with several rooms and extensive verandahs, a reasonable number of easy chairs, benches and shade. The dining room service is especially desirable, and is conducted under the direction of the Board. Exhibitors, visitors and others are assured of getting three meals each day. The dining room service is a great help also to the Directors during the Fair. It is a much easier matter to arrange relief among the help with a dining room on the grounds managed by the Society than in any other way.

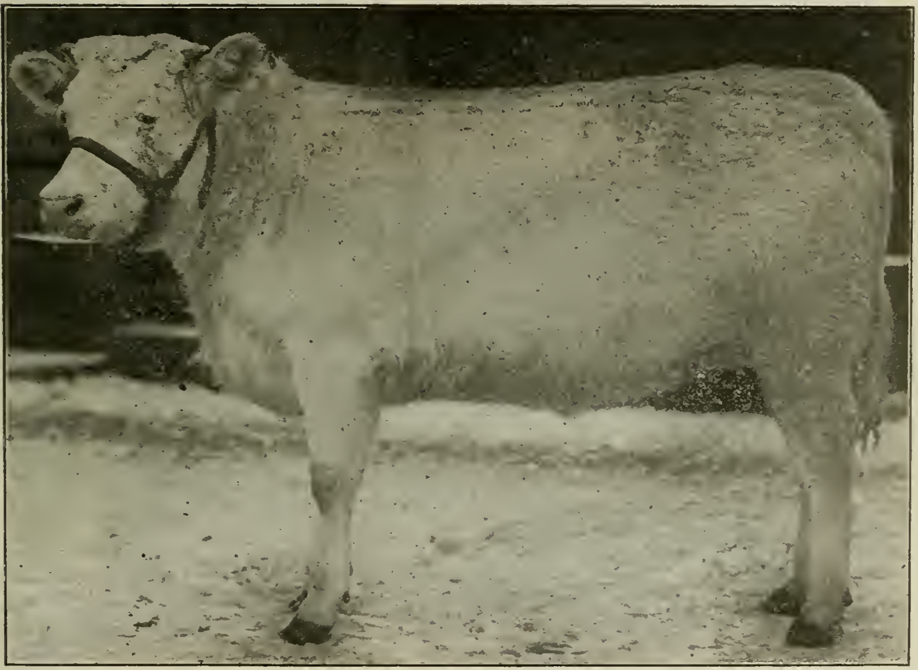
Another very important matter which every Society should endeavor to attend to is to have a supply of fresh water in every building, not only for stock, but a convenient and ample fresh, cool supply for visitors. Water is essential in all the buildings, both for stock and for drinking purposes.

W. E. SMALLFIELD: When the Superintendent asked me to take part in this particular topic, I wondered by what process of reasoning he had done it, but on sitting down to study the matter I soon found there was method in it. In picking up the blue book I found the four fairs in Renfrew had a larger investment in buildings than any county except the Canadian National. Mr. MacVannel has told you that good buildings are a good investment. There is no doubt whatever about it. Take the analogy of other phases of life, what is the proudest boast of any city: "It is a city of homes." Take the communities in this country who will give the best votes on developments, it is the ones who have the best homes erected. If you want a good fair you have to get good buildings. We have a $40,000 Armouries for our main building. We have a machinery hall, a metal clad building

50 x 104. In it this year we are going to show the vegetables, and the poultry upstairs. We have five horse stables. They run 30 x 63 feet, metal roofs. We have three cattle stables 38 x 60. Our cattle stables cost us in the neighborhood of $500 a piece. Our pig pen (we have a place to show the pigs) is 22 x 60, and cost when it was built, $325; together with a plank floor it came to $500. We have a poultry house and a dining hall.

We have not kept the buildings painted as well as we should have done, but it is an important matter.

If you are going to build up a good fair and are going to have good buildings, before you start get a landscape architect to lay your grounds out, and it will be money well spent. We have moved our buildings several times. We had first five acres, then fifteen and then twenty. Keep your buildings to the outside. Let the people be seen by all the people all the time you can.



A promising youngster.

We have a Ladies' Rest Room and a Cradle Room for the babies.

My recollection is that the Annual Report comes out fairly late in the year. There have been many suggestions made that can be used in this year's fair if the Superintendent could prepare a digest of that, and send out a two-page circular within the next month.

We had Miss Powell revise our prize list this year in the Ladies' and Domestic department, but I know very well that it nearly killed our show, not the change so much as because the change was not known in time. If you change your prize list, see to it that you change it in time.

Mr. Bushell asked Mr. Smallfield how he prevailed upon the Dominion Government to give his Society the use of the Armouries for the fair.

W. E. Smallfield: It was a happy combination of circumstances. For four years we had been debating very seriously whether we could manage to raise $10,000 to put up a new building. It happended that there was in our town a young man who was very friendly with Sir Sam Hughes some years before the Government changed, and he said to him, "We need an Armoury." Sir Sam said, "Wait until I am Minister of Militia and I will build you the Armouries." When Sir Sam Hughes was Minister of Militia we invited him down and banquetted him. He had the idea that he was not favoring us. He wanted to make these Armouries community centres, and it happened that our fair grounds fitted in with his scheme so that we got ours. Mr. MacVannel mentioned the curling rink. Keep your eyes open, and you may be able to get the use of some of your buildings in this way.

Mr. Greenwood from Kenora said that a few years ago they had a skating rink burnt down. We wrote to Mr. Wilson and asked if we could invest some of our funds in a skating rink, providing we could get some interest in it. We put $400 into the skating rink, and for that we got a twenty-year lease on the rink for $50 a year.

Prize-winning roadster, owned by C. E. McCaffrey, Russell.

A Member asked if legislation passed last year in connection with community halls applied to exhibition grounds.

J. Lockie Wilson: I don't think it would, but I think some of you gentlemen connected with the Fairs could put that up to the Government. Mr. Connelly said the Minister of Agriculture had practically promised that he was going to have the law changed where the community hall could be built in a town or village.

Moved by James Tonkin, seconded by Charles O'Reilly "That whereas resolutions have been passed asking the Government of Ontario to adopt some system of rural credits for *bona fide* farmers of Northern Ontario who are struggling with the privations and hardships of early settlement, therefore be it resolved that we the members of the Ontario Association of Fairs and Exhibitions place ourselves on record as being in sympathy with the pioneer farmers of Northern Ontario, and are in accord with any reasonable support that would improve the well-being of the residents of Ontario's great Hinterland." Carried unanimously.

It was then moved by A. D. Loynahan, seconded by R. J. Bushell, that a vote of thanks be tendered J. Lockie Wilson for his splendid services to the Association. Carried unanimously.

Mr. Wilson thanked the Convention very heartily, saying I could not have made a failure if I tried with such a body as the Fairs Association. Since I came into the Department fourteen years ago there has never been any friction at any of our Conventions.

The Convention concluded with the singing of "Auld Lang Syne" and "God Save the King."

EXHIBIT OF LADIES' WORK.

An excellent exhibit of work, covering Dairy, Domestic Science, Ladies' Work and Art was viewed by the delegates at the Convention and much admired.

The tables, placed so as to utilize both sides for display of exhibits, were covered with white papers, those used for Dairy and Domestic Science built with one or two tiers, (according to quantity of exhibits) along the centre, 6 to 9 inches in height, the various exhibits placed attractively on paper plates with doyleys, tapes or cords marking off the different sections.

Each section and class were marked with cards bearing their respective numbers in plain distinct type.

The various lines of work were arranged according to classification, space for each section being allotted in accordance with the number of entries, ample space being allowed to display the work advantageously.

The needlework neatly mounted upon white cardboard not only displayed it to advantage, but protected the dainty articles from soil and defacement. The display scheme was arranged upon an 18-foot conical frame along the centre of a 3-foot wide table, to which large articles were attached by means of small thumb tacks. All made a uniformly attractive appearance.

The entire scheme for mounting and sectioning was carried out in white and green, and proved a splendid setting for the various styles of women's work.

Suggestions for score cards and samples of entry and prize tickets, bearing corresponding class, section and exhibit numbers to avoid possible loss or error in awards, were also a helpful feature of the exhibit.

SHORT COURSES FOR LADY JUDGES.

The first "Short Course for Uniformity of Judging," for the judges of the Ontario Departmental Staff on Ladies' Work, was held at the Canadian National Exhibition, on August 26th and 27th, 1919.

The appreciation of the lady judges of this opportunity for better qualification for work was evidenced by the response to the announcement of the Course. When the roll was called on the morning of August 26th nearly fifty ladies of a staff of sixty-five responded to the call, and only a few were delayed beyond the first meeting of the course.

Miss M. V. Powell, of the Departmental staff called the meeting to order, and after a brief introduction outlining the object and work of the Conference, called upon Mr. J. Lockie Wilson, Superintendent of the Fairs and Exhibitions Branch, of the Ontario Department of Agriculture, to address the staff.

Mr. Wilson gave a most inspiring address, setting before the members of the judging staff their responsibility in the development of the Arts and Crafts, and the encouragement of Household Industries by the standards of ideal judgment, and commending to them the Short Course work as a means of reaching a uniform standard of judging. He congratulated the staff on having entered upon a work similar to the lines followed so successfully for the past number of years by the men of the judging staff in their Short Courses.

Mr. Wilson pointed out some of the benefits to be derived from such a study of the various phases of work which would be presented to them for honest, intelligent judgment.

A most hearty vote of thanks was tendered Mr. Wilson, after which the business of the Conference was entered into with earnest interest.

The first subject to be dealt with was "The Necessity for Uniformity of Judging," presented by Mrs. McKay, and was followed by an interesting and helpful discussion and the unanimous expression of the need for a uniform standard.

"Opinions differ as to what constitutes the 'ideal' and we, as judges, have no basis to work on in most departments." That we, as judges, may strive for and maintain a definite standard of work, it is necessary that we confer together as to the outstanding points in the various classes of work, and follow the standard set as far as possible, instead of being guided entirely by individual taste."

"Present and Improved methods of Judging" was next dealt with in five minute addresses by Mesdames Shannon, Greer, Fairburn and Bluett, and the Misses Gray, Currie and Sheppard, each dealing with the line of work in which they were especially qualified, and covering Domestic Science, Dairying. Ladies' Fancy Work and Art.

Animated discussions of the various points were led by Mesdames Casgrain, Calder and Tumelty, with the conclusion that the "present method used by some judges, especially those outside the Departmental staff, is not guided by practical knowledge of the class of work one is called upon to judge, but is governed largely by personal taste, or, in cases where the work is done by local judges, the catering to special friend or individual, without regard to the merits of the exhibits.

"There should be some outstanding scale of points as a guide to the judge, and a knowledge of the class of work being judged.

"There are those who will make awards whether the article or exhibit merits recognition or not, thus giving an erroneous conception of standards of work, both to the exhibitors and to the public generally, as well as a misdirecting of the Societies' funds, which might more advisedly be retained by the Society. unless merited by the exhibitors."

The use of score cards was endorsed as being of great service, especially if filled in and attached to the exhibits, thus giving the exhibitor an opportunity of knowing wherein she has failed to reach the standard required. Not only the exhibitor but the public generally, have the opportunity of the educational feature of the Fair, which this method will necessarily develop.

Other subjects presented and discussed were, "Score Cards and Scoring in Domestic Science and Dairying," Classification of Exhibits, Benefits of Short Course work, and suggestions as to methods to be adopted by the judges, and standards to be attained by the exhibitors.

The main points of value in connection with the Domestic Science, as given by Miss Gray, were, the use of caution in distinguishing between sponge and butter cakes, bread and pastry flours, and an emphasizing of the need for development along culinary lines, also expressing the hope that a "Model Kitchen" would be featured at the Fall Fairs in the near future.

MISS GILHOLM speaking with regard to dairy work said, "Judge butter according to the demands of the mass of consumers. The chief thing in judging butter is to become familiar with the 'ideal' flavor, and then by repeated comparisons with our ideal become efficient in grading butter."

The Conference was called at 8.30 a.m on August 27th, when a tour of the Canadian National Exhibition was made. The judges divided into groups of three and four, each group visiting the various departments in which they were interested, and upon their return reported the points in judging and exhibits which were of value to the Conference. Definite points were decided upon to be followed by the judges this year as a test in order to determine the most just method which may be used by the workers, universally, a copy of which was forwarded to each judge.

MR. J. LOCKIE WILSON brought a message from the Minister of Agriculture, the Honorable Geo. S. Henry, who had expected to be present at the Conference, but was unavoidably detained, but who, through Mr. Wilson assured the ladies of the interest and support of the Department over which he presided, in their efforts to better qualify themselves for efficient service.

The Conference unanimously expressed the opinion that the Short Course was a feature long desired by the workers, and the opinion expressed that each and every one would go to their work this year feeling more confident of the requirements and better fitted to meet those requirements because of the coming together in the two days' study of the work in which they were engaged.

The Conference closed with the following resolutions:

1st. By MISSES GALBRAITH and GRAY; "That whereas our Minister of Agriculture has made it possible for us to become better equipped for our work, by directing the Superintendent to arrange for this Short Course, be it resolved; That as a class of Judges in Ladies Works Departments, we express by letter to the Honorable Mr. Henry our thanks and appreciation, trusting the Honorable Minister will give the judges of the Department the opportunity of like Short Courses from year to year." Carried.

2nd. By MESDAMES GARVER and LOCKING, Resolved:

"That we, the Ontario Departmental Judges of Ladies' Work, Fine Art, Domestic Science and Dairying, assembled in study of Short Courses for Uniformity of Judging, extend to Superintendent Mr. J. Lockie Wilson, Fairs and Exhibitions Branch, our sincere appreciation of the Study Course, as a means to our better equipment for the duties of judging, believing that our Ladies' Work Department is a feature of broader education and better equipment of the home maker, and do respectfully request that a Short Course be made an established annual feature. Be it also resolved: that a hearty vote of thanks be extended to Mr. Wilson for arranging this study course. Carried.

3rd. By MISS GILHOLM and MRS. TUMELTY, resolved:

"That whereas the 'Short Course for Uniformity in Judging Ladies' Work, Fine Art, Domestic Science and Dairying' has revealed the benefits of study of methods, and the need of more uniformity of judging, be it resolved; that the Class assembled, request that the 'Fairs and Exhibitions Branch of the Department Agriculture' under Mr. J. Lockie Wilson, be, and herein is asked to prepare Score Cards of standard points of Judging, for Dairying, Domestic Science, including Breads, Pastry and Bottled Exhibits; and that practical demonstrations and instruction for using said cards be given the judges at some convenient time during the year." Carried.

4th. By MESDAMES SHANNON and ELLIS, resolved:
"That whereas the judges of the Ladies' Work, Fine Art, Domestic Science and Dairying, have enjoyed the privilege and favor of using the Womens' Institute Tent, we express by letter, to Mr. Geo. A. Putnam, Superintendent of Institutes, our appreciation of the use of said Tent for our Short Course meetings." Carried.

By MESDAMES CALDER and SHANNON, moved; "That a hearty vote of thanks and appreciation be extended to Miss M. V. Powell for the interest she has taken in the 'Short Course.'" Carried.

The National Anthem concluded this most successful Short Course for Ladies of the Ontario Departmental Judging Staff.

COMPARATIVE STATEMENT OF GRANTS TO AGRICULTURAL SOCIETIES, 1919-20.

Societies.	1919.	1920.
Algoma:		
Bruce Mines	$162 00	$198 00
Central Algoma	776 00	734 00
Iron Bridge	84 00	83 00
Johnston & Aberdeen	111 00	106 00
North Shore	139 00	124 00
St. Joseph Island	178 00	180 00
Thessalon	237 00	233 00
Brant:		
Onondaga	145 00	160 00
Paris	420 00	416 00
South Brant	450 00	414 00
Bruce:		
Arran and Tara	309 00	322 00
Carrick	254 00	257 00
Chesley	225 00	222 00
Eastnor	75 00	73 00
Hepworth	171 00	166 00
Huron Tp.	206 00	197 00
Kincardine	153 00	156 00
Lucknow	234 00	240 00
N. Bruce & Saugeen	196 00	206 00
Paisley	246 00	225 00
Pinkerton	100 00	97 00
Teeswater	266 00	279 00
Tiverton	135 00	140 00
Underwood	135 00	137 00
Wiarton	195 00	199 00
Carleton:		
Carleton County	356 00	349 00
Carp	325 00	341 00
Fitzroy	200 00	207 00
Metcalfe	290 00	288 00
Dufferin:		
Dufferin	322 00	349 00
Dufferin Central	336 00	331 00
East Luther	307 00	286 00
Dundas:		
Dundas	78 00	61 00
Mountain	206 00	212 00
Winchester	292 00	217 00
Durham:		
Cartwright	143 00	144 00
Clarke Township	327 00	323 00
Millbrook	339 00	312 00
Port Hope	410 00	370 00
West Durham	482 00	459 00
Elgin:		
Aldborough	227 00	224 00
Aylmer & E. Elgin	300 00	206 00
Shedden	95 00	94 00
South Dorchester	197 00	192 00
Straffordville	104 00	102 00
West Elgin	337 00	342 00

Societies.	1919.	1920.
Essex:		
Amherstburg, Anderdon & Malden	$233 00	$209 00
Border Cities	800 00	....
Colchester South	225 00	206 00
Comber	158 00	139 00
Essex County	545 00	549 00
Mersea, Leamington & S. Gosfield	473 00	450 00
Frontenac:		
Frontenac	113 00	....
Kennebec	52 00	46 00
Kingston Industrial	584 00	734 00
Parham	96 00	99 00
Storrington	79 00	78 00
Wolfe Island	110 00	100 00
Glengarry:		
Glengarry	218 00	204 00
Kenyon	153 00	146 00
St. Lawrence Valley	316 00	325 00
Grenville:		
Kemptville	161 00	....
Merrickville	168 00	166 00
Spencerville	159 00	153 00
Grey:		
Ayton	124 00	110 00
Collingwood Tp.	147 00	163 00
Desboro	211 00	215 00
East Grey	126 00	129 00
Egremont	160 00	160 00
Hanover, Bentinck & Brant	164 00	173 00
Holland	179 00	207 00
Keppel	109 00	110 00
Kilsyth	245 00	243 00
Markdale	228 00	254 00
Meaford & St. Vincent	262 00	263 00
Normanby	92 00	84 00
Osprey	141 00	138 00
Owen Sound	404 00	433 00
Priceville	109 00	101 00
Proton	254 00	240 00
Rocklyn	204 00	209 00
South Grey	164 00	157 00
Sydenham	121 00	136 00
Walter's Falls	180 00	220 00
Haldimand:		
Caledonia	578 00	531 00
Canboro	63 00	62 00
Dunnville	158 00	143 00
Haldimand	226 00	213 00
Southern Branch	120 00	116 00
Walpole	193 00	193 00
Haliburton:		
Glamorgan	47 00	....
Haliburton	210 00	205 00
Minden	217 00	223 00

COMPARATIVE STATEMENT OF GRANTS TO AGRICULTURAL SOCIETIES, 1919-20.—*Continued.*

Societies.	1919.	1920.
HALTON:		
Acton	$262 00	$260 00
Esquesing	262 00	250 00
Halton	430 00	436 00
Nelson & Burlington	279 00	279 00
Trafalgar	575 00	800 00
HASTINGS:		
Bancroft	146 00	137 00
Belleville	347 00	354 00
Frankford	258 00	253 00
Madoc	303 00	283 00
Marmora	168 00	199 00
Maynooth	63 00	63 00
Shannonville	150 00	134 00
Stirling	194 00	199 00
Tweed	222 00	212 00
Wollaston	127 00	160 00
HURON:		
Bayfield	119 00	121 00
Blyth	139 00	128 00
Dungannon	137 00	133 00
East Huron	226 00	232 00
Exeter	239 00	234 00
Goderich Industrial	255 00	246 00
Howick	189 00	188 00
Seaforth	209 00	189 00
South Huron (Spring Fair only)		
Turnberry	200 00	187 00
Zurich	149 00	148 00
KENORA:		
Dryden	272 00	249 00
Kenora	496 00	450 00
KENT:		
Camden	138 00	133 00
East Kent	249 00	221 00
Harwich	224 00	220 00
Howard	399 00	373 00
Orford	282 00	262 00
Raleigh & Tilbury	167 00	157 00
Romney & Wheatley	140 00	132 00
Wallaceburg	140 00	131 00
West Kent	320 00	322 00
LAMBTON:		
Bosanquet	184 00	164 00
Brooke & Alvinston	322 00	337 00
East Lambton	286 00	281 00
Florence	189 00	188 00
Forest	247 00	264 00
Moore	289 00	286 00
Petrolia & Enniskillen	390 00	383 00
Plympton & Wyoming	201 00	208 00
Sombra	125 00	121 00
West Lambton	437 00	429 00
LANARK:		
Dalhousie	105 00	104 00
Lanark Tp.	131 00	125 00
Lanark Village and Bathurst	171 00	172 00

Societies.	1919.	1920.
Maberly	$76 00	$81 00
North Lanark	453 00	449 00
Pakenham	187 00	183 00
South Lanark	347 00	347 00
LEEDS:		
Brockville	....	453 00
Delta	193 00	166 00
Frankville	181 00	166 00
Lansdowne	189 00	211 00
Lombardy	158 00	144 00
LENNOX AND ADDINGTON:		
Addington	103 00	126 00
Amherst Island	140 00	140 00
Ernestown	132 00	155 00
Lennox	300 00	300 00
LINCOLN:		
Abingdon	81 00	70 00
Clinton	258 00	264 00
Monck	94 00	81 00
Niagara Town & Tp.	83 00	96 00
Peninsular Central	106 00	102 00
MANITOULIN ISLAND:		
Billings	252 00	250 00
Gore Bay	385 00	377 00
Howland	173 00	184 00
Manitowaning	252 00	253 00
Providence Bay	234 00	243 00
MIDDLESEX:		
Caradoc	158 00	149 00
Delaware	213 00	201 00
Dorchester	236 00	226 00
East Middlesex	100 00	100 00
London Tp.	133 00	140 00
McGillivray	66 00	67 00
Melbourne	259 00	269 00
Mosa & Ekfrid	236 00	216 00
North Middlesex	135 00	133 00
Parkhill	157 00	153 00
Strathroy	552 00	546 00
Thorndale	136 00	158 00
Westminster	156 00	144 00
MUSKOKA:		
Baysville	164 00	159 00
Gravenhurst and Muskoka	337 00	325 00
Medora & Wood	327 00	320 00
Morrison	106 00	99 00
North Muskoka	424 00	386 00
South Muskoka	800 00	800 00
Stephenson & Watt	377 00	347 00
Stisted	171 00	171 00
NIPISSING:		
Astorville	111 00	109 00
Bonfield	144 00	137 00
East Nipissing	286 00	283 00

COMPARATIVE STATEMENT OF GRANTS TO AGRICULTURAL SOCIETIES, 1919-20.—*Continued.*

Societies.	1919.	1920.
NIPISSING.—*Con.*		
North Bay	$208 00	$63 00
Sturgeon Falls	433 00	395 00
Verner	389 00	366 00
NORFOLK:		
Charlotteville	146 00	144 00
Courtland	122 00	126 00
Houghton	131 00	123 00
Norfolk County	618 00	644 00
North Walsingham	121 00	101 00
Townsend	85 00	98 00
Windham	122 00	110 00
NORTHUMBERLAND:		
Alnwick	....	152 00
Brighton	278 00	252 00
Cobourg Central	....	283 00
Colborne	282 00	303 00
Cramahe	160 00	....
Percy Township	536 00	537 00
Seymour	269 00	289 00
Wooler	154 00	162 00
ONTARIO:		
Beaverton	227 00	232 00
Brock	210 00	188 00
Pt. Perry, Reach & Scugog	253 00	240 00
Ramona	40 00	40 00
Scott	137 00	128 00
South Ontario	591 00	610 00
Uxbridge	203 00	207 00
OXFORD:		
Drumbo	344 00	335 00
East Nissouri	150 00	142 00
Ingersoll N. and W. Oxford	181 00	181 00
North Norwich	235 00	216 00
South Norwich	139 00	144 00
Tavistock	289 00	281 00
Tillsonburg and Dereham	267 00	277 00
West Zorra & Embro	214 00	208 00
Woodstock	525 00	540 00
PARRY SOUND:		
Armour, Ryerson and B. Falls	557 00	536 00
Christie	286 00	291 00
Loring	228 00	224 00
Machar	211 00	204 00
Magnetawan	282 00	303 00
McKellar	469 00	462 00
McMurrich	292 00	282 00
Parry Sound	537 00	523 00
Perry	375 00	343 00
Powassan	357 00	361 00
Rosseau	390 00	393 00
Strong	323 00	327 00
United Tps.	273 00	264 00
PEEL:		
Albion & Bolton	306 00	280 00
Caledon	166 00	160 00

Societies.	1919.	1920.
PEEL.—*Con.*		
Cooksville	$301 00	$280 00
Peel	499 00	490 00
Toronto Gore (Spring Fair only)		
Toronto Tp.	293 00	306 00
PERTH:		
Elma	125 00	131 00
Fullarton, Logan and Hibbert	331 00	334 00
Kirkton	215 00	223 00
Listowel	160 00	158 00
Mornington	213 00	222 00
South Perth	228 00	223 00
Stratford	456 00	455 00
PETERBOROUGH:		
East Peterborough	470 00	464 00
Galway	59 00	54 00
Lakefield	160 00	155 00
Otonabee	153 00	150 00
Peterboro Industrial	799 00	800 00
PRESCOTT:		
Alfred	137 00	151 00
South Plantagenet	133 00	131 00
Vankleek Hill	395 00	382 00
PRINCE EDWARD:		
Ameliasburg	206 00	200 00
Prince Edward	700 00	724 00
Sophiasburg	132 00	124 00
RAINY RIVER:		
Atwood	468 00	474 00
Rainy River Valley	608 00	582 00
RENFREW:		
Arnprior	359 00	335 00
Cobden	261 00	255 00
North Renfrew	421 00	413 00
Renfrew	694 00	699 00
RUSSELL:		
Casselman	45 00	37 00
Clarence	99 00	92 00
Russell	229 00	225 00
SIMCOE:		
Alliston	186 00	177 00
Barrie	441 00	476 00
Beeton	162 00	153 00
Bradford and W. Gwillimbury	181 00	204 00
Coldwater	167 00	169 00
Cookstown	203 00	202 00
East Simcoe	300 00	272 00
Flos Tp.	194 00	207 00
Nottawasaga and G. Northern	284 00	293 00
Oro	209 00	201 00
Tiny & Tay	159 00	227 00

COMPARATIVE STATEMENT OF GRANTS TO AGRICULTURAL SOCIETIES, 1919-20.—*Continued.*

Societies.	1919.	1920.
STORMONT:		
Cornwall	$329 00	$346 00
Finch	75 00	77 00
Roxborough	246 00	266 00
Stormont	164 00	158 00
SUDBURY:		
Chelmsford	205 00	218 00
Martland & Cosby	117 00	114 00
Massey	296 00	273 00
Warren	242 00	273 00
TEMISKAMING:		
Charlton	250 00	259 00
Cochrane	187 00	195 00
Englehart	327 00	365 00
Matheson	86 00	....
New Liskeard	456 00	460 00
Porquis Jct.	58 00	70 00
THUNDER BAY:		
Oliver	364 00	369 00
West Algoma	800 00	800 00
Whitefish Valley	185 00	202 00
VICTORIA:		
Eldon	129 00	122 00
Fenelon	174 00	169 00
Mariposa	110 00	98 00
South Victoria	800 00	800 00
Verulam	298 00	271 00
WATERLOO:		
Elmira and Woolwich	174 00	176 00
South Waterloo	548 00	545 00
Wellesley and North Easthope	221 00	238 00
Wilmot	300 00	350 00

Societies.	1919.	1920.
WELLAND:		
Bertie	$146 00	$129 00
Fenwick	321 00	315 00
Thorold Town & Tp.	161 00	209 00
Wainfleet	101 00	....
Welland	475 00	485 00
WELLINGTON:		
Arthur	255 00	259 00
Centre Wellington	376 00	359 00
Erin	310 00	284 00
Mount Forest	339 00	330 00
Palmerston	147 00	144 00
Peel & Drayton	169 00	178 00
Puslinch	177 00	167 00
Rockwood	234 00	254 00
West Wellington	158 00	164 00
WENTWORTH:		
Ancaster	248 00	250 00
Binbrook	121 00	149 00
Hamilton and Wentworth	....	....
Rockton	360 00	342 00
Waterdown	191 00	192 00
West Flamboro	138 00	153 00
YORK:		
Markham and E. York	721 00	645 00
Newmarket	451 00	454 00
Queensville	....	120 00
Richmond Hill	244 00	262 00
Scarboro	360 00	342 00
Schomberg	222 00	217 00
Sutton	159 00	171 00
Weston, York and Etobicoke	264 00	276 00
Woodbridge	600 00	593 00

SPECIAL GRANTS TO SOCIETIES IN THE DISTRICTS.

Societies.	1919.	1920.
ALGOMA:		
Bruce Mines	$56 00	$66 00
Central Algoma	100 00	100 00
Iron Bridge	29 00	28 00
Johnston & Aberdeen	38 00	35 00
North Shore	48 00	41 00
St. Joseph Island	61 00	60 00
Thessalon	82 00	78 00
FRONTENAC:		
Kennebec	36 00	30 00
Parham	66 00	65 00
HALIBURTON:		
Glamorgan	16 00	16 00
Haliburton	73 00	69 00
Minden	75 00	74 00
HASTINGS:		
Bancroft	100 00	91 00

Societies.	1919.	1920.
Maynooth	$44 00	$42 00
Wollaston	88 00	100 00
KENORA:		
Dryden	94 00	86 00
Kenora	100 00	100 00
MANITOULIN:		
Billings	87 00	83 00
Gore Bay	100 00	100 00
Howland	60 00	61 00
Manitowaning	87 00	84 00
Providence Bay	81 00	81 00
MUSKOKA:		
Baysville	57 00	53 00
Gravenhurst and Muskoka	100 00	100 00
Medora and Wood	100 00	100 00

SPECIAL GRANTS TO SOCIETIES IN THE DISTRICTS.—*Continued.*

Societies.	1919.	1920.
MUSKOKA.—*Con.*		
Morrison	$36 00	$33 00
North Muskoka	100 00	100 00
South Muskoka	100 00	100 00
Stephenson & Watt	100 00	100 00
Stisted	59 00	57 00
NIPISSING:		
Astorville	38 00	36 00
Bonfield	50 00	46 00
East Nipissing	90 00	94 00
Sturgeon Falls	100 00	100 00
Verner	100 00	100 00
PARRY SOUND:		
Armour, Ryerson and B. Falls	100 00	100 00
Christie	99 00	97 00
Loring	79 00	75 00
Machar	73 00	68 00
Magnetawan	98 00	100 00
McKellar	100 00	100 00
McMurrich	100 00	94 00
Parry Sound	100 00	100 00
Perry	100 00	100 00
Powassan	100 00	100 00
Rosseau	100 00	100 00
Strong	100 00	100 00
United Tps.	95 00	88 00

Societies.	1919.	1920.
PETERBOROUGH:		
Galway	$41 00	$36 00
RAINY RIVER:		
Atwood	100 00	100 00
Rainy River Valley	100 00	100 00
SUDBURY:		
Chelmsford	77 00	74 00
Martland and Cosby	40 00	38 00
Massey	100 00	90 00
North Bay	....	75 00
Warren	84 00	90 00
TEMISKAMING:		
Charlton	86 00	86 00
Cochrane	65 00	65 00
Englehart	100 00	100 00
Matheson	30 00	30 00
New Liskeard	100 00	100 00
Porquis Jct.	9 00	18 00
THUNDER BAY:		
Oliver	100 00	100 00
West Algoma	100 00	100 00
Whitefish Valley	64 00	67 00
	$5,000 00	$5,000 00

GRANTS TO SPRING FAIRS, 1920.

Stallion Shows, 1920, $372.00.

Millbrook	$50 00
South Huron	50 00
South Perth	28 00
Forest	44 00
Erin	50 00
Wilmot	50 00
Wellesley & North Easthope	50 00
East Luther	50 00
	$372 00

Stallion and Bull Shows, 1920, $244.00.

Verner	$50 00
South Huron	44 00
Paris	50 00
Toronto Gore	50 00
Arthur	50 00
	$244 00

Seed Fairs, 1920, $186.00.

Verulam	$20 00
Richmond Hill	25 00
Rockwood	23 00
Puslinch	8 00
Centre Wellington	25 00
Verner	19 00
South Huron	6 00
South Waterloo	17 00
Wilmot	18 00
New Liskeard	25 00
	$186 00

GRANTS TO SOCIETIES OWNING PURE-BRED STOCK, 1920.

Colchester North	$250 00
Comber	20 00
Cottam	300 00
Drummond	90 00
Dummer and Douro	330 00
Emily	170 00
Lakehurst	170 00
Oldcastle	410 00
Osgoode	250 00
S. Woodslee	779 00
Verulam	80 00
	$2,849 00

SPECIAL GRANTS.

INDIAN SOCIETIES:		
Garden River	$50 00	$50 00
Sarnia Reserve	50 00	50 00
Six Nations	100 00	100 00
United Indian	100 00	100 00
	$300 00	$300 00

GRANTS TO THE CANADIAN NATIONAL, CENTRAL CANADA AND WESTERN FAIR.

	1919.	1920.
Canadian National	$2,500 00	$2,500 00
Central Canada	1,091 00	1,057 00
Western Fair	1,409 00	1,443 00
	$5,000 00	$5,000 00

LEGISLATIVE GRANTS TO AGRICULTURAL SOCIETIES WHICH HELD FIELD CROP COMPETITIONS IN 1919.

Algoma:	
Bruce Mines	$100 00
Central Algoma	100 00
North Shore	100 00
St. Joseph Island	100 00
Thessalon	100 00
Brant:	
Onondaga	100 00
Paris	100 00
Bruce:	
Arran and Tara	50 00
Carrick	100 00
Chesley	100 00
Eastnor	50 00
Hepworth	100 00
Lucknow	100 00
N. Bruce & Saugeen	100 00
Pinkerton	50 00
Teeswater	100 00
Underwood	50 00
Wiarton	100 00
Carleton:	
Carp	100 00
Fitzroy	100 00
Metcalfe	100 00
Dufferin:	
Dufferin	100 00
Dufferin Central	50 00
East Luther	100 00
Dundas:	
Mountain	100 00
Durham:	
Cartwright	50 00
Clarke Tp.	100 00
Millbrook	100 00
Port Hope	100 00
West Durham	100 00
Elgin:	
Aldborough	100 00
Straffordville	50 00
West Elgin	100 00
Essex:	
Amherstburg	100 00
Comber	50 00
Frontenac:	
Kingston Industrial	50 00
Wolfe Island	50 00
Glengarry:	
Kenyon	50 00
St. Lawrence Valley	100 00
Grey:	
Desboro	50 00
East Grey	50 00
Holland	50 00
Keppel	100 00
Kilsyth	100 00
Markdale	100 00
Meaford and St. Vincent	100 00
Normanby	50 00
Osprey	50 00
Proton	100 00
Rocklyn	100 00
South Grey	50 00
Walter's Falls	50 00
Haldimand:	
Haldimand	50 00
Halton:	
Halton	50 00
Nelson and Burlington	100 00
Hastings:	
Madoc	100 00
Stirling	100 00
Wollaston	100 00
Huron:	
Blyth	50 00
East Huron	50 00
Howick	100 00
Turnberry	100 00
Zurich	50 00
Kenora:	
Dryden	100 00
Kenora	100 00
Kent:	
East Kent	100 00
Harwich	50 00
Howard	100 00
Orford	100 00
Wallaceburg	100 00
Lambton:	
Brooke and Alvinston	100 00
East Lambton	50 00
Florence	100 00
Plympton and Wyoming	50 00
Sombra	100 00

LEGISLATIVE GRANTS TO AGRICULTURAL SOCIETIES WHICH HELD FIELD CROP COMPETITIONS IN 1919.—*Continued.*

LEEDS:	
Brockville	100 00
Lansdowne	50 00
Lombardy	50 00
LINCOLN:	
Niagara Town and Tp.	100 00
MANITOULIN:	
Gore Bay	50 00
MIDDLESEX:	
Caradoc	100 00
Dorchester	50 00
East Middlesex	50 00
London Tp.	100 00
McGillivray	50 00
Melbourne	50 00
North Middlesex	50 00
Strathroy	100 00
Westminster	50 00
MUSKOKA:	
Gravenhurst and Muskoka	100 00
Medora and Wood	100 00
North Muskoka	100 00
South Muskoka	100 00
Stephenson and Watt	100 00
NIPISSING:	
Bonfield	50 00
NORFOLK:	
Courtland	100 00
Norfolk County	100 00
North Walsingham	50 00
NORTHUMBERLAND:	
Brighton	50 00
Seymour	100 00
Wooler	50 00
ONTARIO:	
Beaverton	100 00
OXFORD:	
East Nissouri	100 00
North Norwich	50 00
South Norwich	50 00
PARRY SOUND:	
Christie	100 00
Loring	50 00
Machar	100 00
Magnetawan	100 00
McKellar	100 00
McMurrich	100 00
Perry	100 00
Powassan	100 00
Rosseau	100 00
Strong	100 00
United Tp.	100 00
PEEL:	
Toronto Tp.	50 00

PERTH:	
Elma	50 00
Fullarton, Logan and Hibbert	100 00
Kirkton	100 00
Stratford	100 00
PETERBOROUGH:	
East Peterborough	50 00
Otonabee	100 00
Peterborough Industrial	100 00
PRESCOTT:	
Alfred	100 00
PRINCE EDWARD:	
Ameliasburg	50 00
Prince Edward	50 00
Sophiasburg	50 00
RAINY RIVER:	
Atwood	100 00
Rainy River Valley	100 00
RENFREW:	
Cobden	100 00
North Renfrew	100 00
SIMCOE:	
Barrie	50 00
Coldwater	100 00
Nottawasaga & G. Northern	100 00
SUDBURY:	
Warren	50 00
TEMISKAMING:	
Charlton	100 00
Englehart	100 00
Matheson	100 00
New Liskeard	100 00
THUNDER BAY:	
Oliver	100 00
Whitefish Valley	100 00
VICTORIA:	
Emily	50 00
Fenelon	50 00
Verulam	100 00
WATERLOO:	
South Waterloo	100 00
WELLAND:	
Bertie	100 00
Fenwick	100 00
WELLINGTON:	
Arthur	100 00
Centre Wellington	100 00
Erin	100 00
Puslinch	100 00
Rockwood	100 00
West Wellington	50 00

LEGISLATIVE GRANTS TO AGRICULTURAL SOCIETIES WHICH HELD FIELD CROP COMPETITIONS IN 1919.—*Continued.*

WENTWORTH:	
Ancaster	100 00
Waterdown	50 00
West Flamboro	50 00
YORK:	
Markham	100 00
Richmond Hill	50 00
Scarboro	100 00
Woodbridge	100 00
	$13,300 00

GRANTS TO SOCIETIES WHICH SUFFERED LOSSES IN GATE RECEIPTS THROUGH WET WINTER.

BRUCE:	
Chesley	$137 00
CARLETON:	
Fitzroy	48 00
DUFFERIN:	
East Luther	87 00
DURHAM:	
Port Hope	38 00
ESSEX:	
Amherstburg	88 00
GLENGARRY:	
St. Lawrence Valley	294 00
GREY:	
Desboro	47 00
Holland	55 00
HASTINGS:	
Tweed	90 00
HURON:	
Seaforth	225 00
Turnberry	300 00
LAMBTON:	
East Lambton	68 00
Moore	150 00
Petrolia and Enniskillen	176 00
LEEDS:	
Brockville	300 00
MIDDLESEX:	
Parkhill	223 00
Thorndale	110 00
MUSKOKA:	
North Muskoka	83 00
NORFOLK:	
N. Walsingham	74 00
Windham	71 00
OXFORD:	
Tavistock	60 00
PARRY SOUND:	
Perry	15 00
PRINCE EDWARD:	
Ameliasburg	164 00
STORMONT:	
Stormont	42 00
THUNDER BAY:	
Whitefish Valley	6 00
WATERLOO:	
Wellesley and N. Easthope	59 00
WELLINGTON:	
Erin	300 00
YORK:	
Richmond Hill	78 00
	$3,388 00

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES IN ONTARIO IN 1919.

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
ALGOMA:	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Bruce Mines	56 75	53 00	27 00	29 50	139 75	306 00
Central Algoma	106 50	108 00	68 00	41 00	548 70	872 20
Iron Bridge	17 50	14 00	5 50	3 00	72 70	112 70
Johnston and Aberdeen	32 50	17 00	22 75	2 00	65 75	140 00
North Shore	21 50	18 25	10 75	1 50	72 75	124 75
St. Joseph Island	37 25	28 00	16 75	1 75	156 25	240 00
Thessalon	72 00	36 00	12 00	8 00	158 25	286 25
BRANT:						
Onondaga	115 00	130 00	34 00	44 50	236 25	559 75
Paris	293 00	166 00	165 00	74 00	543 00	1,241 00
South Brant	356 00	152 00	67 00	66 00	600 00	1,241 00
BRUCE:						
Arran and Tara	410 00	180 00	40 00	18 00	390 50	1,038 50
Carrick	200 00	134 00	40 00	41 50	360 25	775 75
Chesley	169 50	33 00	44 00	....	280 80	527 30
Eastnor	47 00	22 25	10 00	3 00	125 75	208 00
Hepworth	97 00	80 00	21 00	4 00	190 30	392 30
Huron Township	107 75	27 50	55 50	33 50	247 72	471 97
Kincardine	142 00	82 25	40 00	21 00	156 75	442 00
Lucknow	198 50	138 50	41 00	43 50	272 10	693 60
North Bruce and Saugeen	170 00	120 00	31 00	20 50	261 90	603 40
Paisley	162 25	67 50	54 50	27 00	273 80	585 05
Pinkerton	45 75	38 50	10 00	8 00	142 75	245 00
Teeswater	188 50	181 00	38 75	45 25	371 00	824 50
Tiverton	141 50	64 50	46 25	26 00	155 00	433 25
Underwood	101 00	90 75	53 25	39 75	132 25	417 00
Wiarton	119 00	99 50	40 00	23 00	277 15	558 65
CARLETON:						
Carleton County	331 00	139 00	158 00	72 00	430 90	1,130 90
Carp	400 00	140 00	65 00	25 00	345 40	975 40
Fitzroy	165 58	54 80	19 42	11 00	254 08	504 88
Metcalfe	216 00	159 50	84 25	34 50	337 75	832 00
DUFFERIN:						
Dufferin	300 00	263 00	126 00	50 00	401 25	1,140 25
Dufferin Central	213 00	226 00	43 00	2 00	375 00	859 00
East Luther	177 50	58 00	43 00	9 00	431 65	718 65
DUNDAS:						
Dundas	180 00	....	....	....	....	180 00
Mountain	107 75	282 00	....	18 00	171 80	579 55
Winchester	88 75	114 40	48 25	14 00	287 05	552 45
DURHAM:						
Cartwright	133 50	43 50	50 75	16 00	179 70	423 45
Clarke Township	299 00	221 00	68 50	60 00	310 00	958 50
Millbrook	350 50	86 50	51 00	43 00	361 50	892 50
Port Hope	315 00	159 00	105 00	8 00	520 35	1,107 35
West Durham	354 00	262 00	117 00	70 00	488 90	1,291 90
ELGIN:						
Aldboro	170 50	63 00	59 00	32 50	261 55	586 55
Aylmer and E. Elgin	117 50	155 50	24 00	37 00	241 65	575 65
Shedden	79 50	78 50	27 25	8 25	78 90	272 40
South Dorchester	130 00	80 00	20 00	9 00	278 00	517 00
Straffordville	29 00	58 25	20 50	11 75	129 50	249 00
West Elgin	528 50	168 00	103 25	47 50	305 25	1,152 50
ESSEX:						
Amherstburg, Anderdon and Malden	87 00	61 50	60 05	89 50	158 10	456 15
Border Cities Agr. & Ind. Ex.	(No fair)	....	....	....	....	....
Colchester South	110 00	102 00	83 45	65 50	257 50	618 45
Comber	21 50	25 25	41 00	18 00	110 00	215 75
Essex County	272 00	381 50	260 00	224 00	706 75	1,844 25
Mersea, Leamington and S. Gosfield	225 00	240 25	249 00	106 00	585 60	1,405 85

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—*Continued.*

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
Frontenac:	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Kennebec	34 00	12 25	16 25	4 00	53 70	120 20
Kingston Industrial	396 00	582 00	202 00	84 00	1,407 75	2,671 75
Parham	34 00	12 25	16 25	4 00	53 70	120 20
Storrington	79 25	34 20	17 80	16 50	126 25	274 00
Wolfe Island	57 75	42 00	7 75	5 00	131 20	243 70
Glengarry:						
Glengarry	136 50	148 00	45 15	26 00	193 45	549 10
Kenyon	135 00	115 00	25 25	17 00	151 75	444 00
St. Lawrence Valley	329 00	203 00	49 50	12 00	263 29	856 79
Grenville:						
Kemptville	(No fair)					
Merrickville	205 64	35 00	15 00	1 50	167 40	424 54
Spencerville	48 00	86 50	18 50	14 00	244 15	411 15
Grey:						
Ayton	106 00	44 00	33 75	20 00	102 00	305 75
Collingwood Tp.	129 00	103 50	58 50	31 00	226 50	548 50
Desboro	202 50	145 00	36 25	9 50	234 50	627 75
East Grey	79 00	54 50	32 00	14 25	147 95	327 70
Egremont	152 75	92 50	44 50	34 00	177 55	501 30
Hanover, Bentinck & Brant	150 00	64 00	85 50	20 00	215 00	534 50
Holland	222 00	152 50	36 00	51 50	280 75	742 75
Keppel & Sarawak	64 25	34 75	15 00	6 50	109 20	229 70
Kilsyth	229 00	214 00	38 25	23 00	217 25	721 50
Markdale	294 00	206 55	131 00	54 00	307 45	993 00
Meaford & St. Vincent	158 00	120 00	24 50	16 00	359 05	677 55
Normanby	61 50	35 25	9 00	4 25	130 75	240 75
Osprey	60 00	100 75	45 00	9 50	146 94	362 19
Owen Sound	432 00	314 50	74 00	67 00	606 20	1,493 70
Priceville	49 00	37 00	37 50	4 50	132 40	260 40
Proton	166 00	86 75	52 50	5 00	289 25	599 50
Rocklyn	162 00	139 00	27 00	33 50	209 00	570 50
South Grey	83 50	56 00	54 00	25 50	267 75	486 75
Sydenham	127 00	76 00	27 75	39 50	188 50	458 75
Walter's Falls	290 40	195 75	40 00	18 00	299 75	843 90
Haldimand:						
Caledonia	330 00	211 00	298 00	91 00	668 00	1,598 00
Canboro	83 75	15 75	12 00	....	92 90	204 40
Dunnville	122 00	45 00	29 25	....	173 15	369 40
Haldimand	134 50	95 00	43 00	5 25	230 20	507 95
Southern Branch	102 00	13 00	34 00	15 50	179 60	344 10
Walpole	161 00	115 50	69 50	13 00	221 25	580 25
Haliburton:						
Glamorgan	(No	returns)				
Haliburton	82 50	43 25	12 75	14 50	191 55	344 55
Minden	74 50	61 25	39 50	16 00	198 40	389 65
Halton:						
Acton	231 00	123 00	57 00	33 00	371 65	815 65
Esquesing	242 00	88 00	87 00	45 00	264 70	726 70
Halton	386 38	310 50	97 50	27 00	319 88	1,141 26
Nelson and Burlington	243 50	102 75	60 00	6 00	364 75	777 00
Trafalgar	2.502 00	431 00	280 00	43 00	1,119 35	4,375 35
Hastings:						
Bancroft	46 00	18 50	30 00	8 00	267 10	369 60
Belleville	280 50	295 00	120 50	61 50	457 65	1,215 15
Frankford	250 00	95 25	103 25	60 75	290 70	799 95
Madoc	241 00	66 60	30 90	42 00	335 00	715 50
Marmora	225 00	93 50	19 25	40 50	236 00	614 25
Maynooth	56 50	36 00	12 00	3 00	97 00	204 50
Shannonville	58 00	47 25	59 50	37 20	180 25	382 20
Stirling	188 50	39 25	31 75	37 50	308 25	605 25
Tweed	98 00	114 75	73 75	28 00	298 70	613 20
Wollaston	100 00	105 00	72 00	57 00	258 00	592 00

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—*Continued.*

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
Huron:	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Bayfield	97 50	37 50	36 00	19 50	202 00	392 50
Blyth	82 50	63 00	45 50	34 50	205 00	430 50
Dungannon	106 50	83 25	29 50	28 00	183 50	430 75
East Huron	161 00	108 50	48 00	32 00	380 40	729 90
Exeter	130 50	102 00	60 00	38 00	327 55	658 05
Goderich Industrial	141 00	112 00	40 15	20 00	460 30	773 45
Howick	117 50	97 25	32 75	29 00	236 50	513 00
Seaforth	126 00	43 50	60 00	20 00	307 17	556 67
South Huron	(Spring	Show on	ly)			
Turnberry	93 00	14 50	10 00	....	272 30	389 80
Zurich	96 50	69 00	28 25	28 00	201 95	423 70
Kenora:						
Dryden	46 00	62 00	23 00	13 00	196 00	340 00
Kenora	75 00	50 00	....	15 00	389 75	529 75
Kent:						
Camden	90 00	48 00	55 50	65 25	147 35	406 10
East Kent	159 50	75 50	82 00	38 95	172 15	528 10
Harwich	108 00	74 00	56 00	23 75	295 55	557 30
Howard	270 00	191 50	158 50	81 75	291 45	993 20
Orford	175 75	134 50	78 75	59 50	237 55	686 05
Raleigh and Tilbury	78 00	48 00	75 25	26 75	183 80	411 80
Romney and Wheatley	55 00	56 75	64 30	22 00	137 00	335 05
Wallaceburg	36 00	57 25	26 75	26 25	168 30	314 55
West Kent	183 00	240 50	176 50	132 00	389 25	1,121 25
Lambton:						
Bosanquet	86 25	46 00	5 50	9 50	302 55	449 80
Brooke and Alvinston	227 50	171 00	70 25	5 50	465 25	939 50
East Lambton	154 50	150 50	101 75	43 50	342 55	792 80
Florence	173 00	74 25	31 60	34 25	182 65	495 75
Forest	164 00	140 50	74 00	52 50	441 35	872 35
Moore	183 50	217 50	73 50	49 75	330 65	854 90
Petrolia and Enniskillen	212 75	180 50	179 50	69 50	410 15	1,052 40
Plympton and Wyoming	135 50	93 25	128 75	49 15	300 75	707 40
Sombra	49 00	33 75	28 50	11 00	133 70	255 95
West Lambton	152 00	192 50	149 50	70 00	545 60	1,109 60
Lanark:						
Dalhousie	75 60	49 50	18 25	75	177 85	321 95
Lanark Tp.	99 00	59 50	7 50	17 50	201 25	384 75
Lanark Village & Bathurst.	166 00	70 00	37 00	30 00	276 93	579 93
Maberly	54 50	75 25	9 00	4 00	112 75	255 50
North Lanark	688 00	163 50	60 00	26 50	548 55	1,486 55
Pakenham	230 00	36 00	30 00	10 00	236 15	542 15
South Lanark	421 50	201 20	63 00	51 00	406 65	1,143 35
Leeds:						
Brockville	235 00	274 50	94 50	24 00	701 70	1,329 70
Delta	86 40	37 57	66 60	9 90	223 07	423 54
Frankville	111 50	152 50	72 75	19 50	203 15	559 40
Lansdowne	114 00	204 00	38 00	34 00	370 00	760 00
Lombardy	49 50	41 00	18 50	2 25	92 50	203 75
Lennox and Addington:						
Addington	255 00	86 00	20 00	33 50	108 85	503 35
Amherst Island	67 95	59 45	20 00	2 75	94 95	245 10
Ernestown	259 00	72 50	62 00	28 50	180 00	602 00
Lennox	209 00	149 00	129 90	63 00	400 30	951 20
Lincoln:						
Abingdon	19 00	30 00	31 25	3 00	205 95	289 20
Clinton Tp.	120 00	77 00	96 00	35 00	441 30	769 30
Monck	53 75	41 50	47 50	1 50	97 80	242 05
Niagara Town and Tp.	119 50	....	....	....	175 20	294 70
Peninsular Central	77 00	36 75	24 25	15 00	149 25	302 25

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—*Continued.*

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
MANITOULIN ISLAND:						
Billings	38 00	59 50	75 50	7 00	209 75	389 75
Gore Bay	133 00	89 00	65 00	15 00	306 00	608 00
Howland	36 25	36 00	11 75	11 50	215 25	310 75
Manitowaning	62 75	108 50	18 75	3 50	173 75	367 25
Providence Bay	72 25	60 25	33 05	12 00	170 00	347 50
MIDDLESEX:						
Caradoc	121 00	35 25	23 00	7 00	174 05	360 30
Delaware	129 50	115 00	36 75	38 00	241 15	560 40
Dorchester	274 00	201 00	17 75	11 25	129 65	633 65
London Tp.	101 50	74 50	28 50	2 25	169 25	376 00
McGillivray	60 00	10 50	8 50	3 50	93 50	176 00
Melbourne	334 50	147 00	57 25	19 25	315 10	873 10
Mosa and Ekfrid	175 32	157 25	32 50	17 25	211 45	593 77
North Middlesex	91 50	54 50	17 00	5 00	226 50	394 50
Parkhill	100 00	34 50	17 25	....	283 00	434 75
Strathroy	412 00	308 00	131 25	41 00	649 80	1,542 05
Thorndale	96 00	150 00	41 75	19 25	227 00	534 00
Westminster	96 00	60 00	15 75	25 75	217 45	410 95
MUSKOKA:						
Baysville	33 00	38 00	31 50	4 00	140 65	247 15
Gravenhurst and Muskoka.	93 50	52 00	6 25	13 00	323 35	488 10
Medora and Wood	52 00	68 50	8 50	10 50	242 50	382 00
Morrison	40 00	28 00	4 50	10 50	56 25	139 25
North Muskoka	87 00	34 00	....	9 00	322 25	452 25
South Muskoka	268 00	176 00	125 00	70 00	595 50	1,234 50
Stephenson and Watt	75 00	58 00	19 00	1 00	253 70	406 70
Stisted	36 00	34 00	27 25	11 00	131 25	239 50
NIPISSING:						
Astorville	36 50	23 50	10 00	4 00	104 80	178 80
Bonfield	31 00	14 50	7 00	3 00	124 50	180 00
East Nipissing	54 75	73 00	3 00	14 00	239 50	384 25
North Bay	30 00	9 00	20 00	3 00	289 00	351 00
Sturgeon Falls	160 50	108 00	18 00	11 50	130 50	428 50
Verner	94 10	166 50	27 00	34 00	125 30	446 90
NORFOLK:						
Charlotteville	88 50	44 00	17 50	10 50	231 05	391 55
Courtland	47 50	34 00	21 00	6 75	208 95	318 20
Houghton	56 75	90 25	31 50	18 75	123 40	320 65
Norfolk County	319 00	492 00	160 00	109 50	1,037 60	2,118 10
North Walsingham	38 00	28 00	8 75	6 00	100 70	181 45
Townsend	108 25	55 25	13 00	3 50	87 50	267 50
Windham	73 25	28 50	7 25	9 75	155 95	274 70
NORTHUMBERLAND:						
Alnwick	139 75	94 00	37 00	30 00	178 10	478 85
Brighton	195 00	53 00	72 00	22 00	323 45	665 45
Cobourg Central	107 00	142 00	30 50	18 00	456 50	754 00
Colborne	430 00	144 00	62 50	50 75	408 70	1,095 95
Cramahe	No	Returns				
Percy Tp.	590 50	242 75	173 50	73 00	683 15	1,762 90
Seymour	199 50	224 75	87 75	44 25	285 25	841 50
Wooler	276 50	33 50	11 25	13 00	152 30	486 55
ONTARIO:						
Beaverton	209 00	115 00	116 50	35 50	88 55	564 55
Brock	127 25	145 50	70 00	18 50	192 50	553 75
Pt. Perry, Reach & Scugog.	180 00	186 00	105 00	5 00	243 75	719 75
Ramona	47 00	22 25	9 25	2 50	47 90	128 90
Scott	131 00	46 00	29 50	17 50	141 75	365 75
South Ontario	615 00	363 00	178 50	70 00	728 40	1,954 90
Uxbridge	306 00	206 00	123 00	73 00	65 50	773 50

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—*Continued.*

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
OXFORD:	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Drumbo	303 00	123 00	106 50	18 50	459 50	1,010 50
East Nissouri	150 35	4 50	20 50	13 00	115 95	304 30
Ingersoll & N. & W. Oxford	148 00	88 00	10 00	6 50	264 50	517 00
North Norwich	189 00	75 75	17 25	13 00	315 60	610 60
South Norwich	190 00	73 50	30 50	22 50	214 05	530 55
Tavistock	214 00	94 00	64 00	70 00	308 95	750 95
Tillsonburg & Dereham	287 00	125 00	46 00	30 00	353 50	841 50
West Zorra & Embro	225 00	54 00	32 00	29 00	269 75	609 75
Woodstock	401 50	452 00	102 00	73 00	852 25	1,880 75
PARRY SOUND:						
Armour, Ryerson & Burk's Falls	179 00	132 00	58 00	25 00	398 39	792 39
Christie	81 00	60 00	29 50	10 00	211 00	391 50
Loring	43 00	42 00	53 75	13 25	160 50	312 50
Machar	58 25	40 25	10 50	7 00	160 75	276 75
Magnetawan	87 50	56 50	19 50	13 00	255 50	432 00
McKellar	121 50	141 75	68 75	44 00	338 75	714 75
McMurrich	95 00	48 00	49 00	14 00	160 85	366 85
Parry Sound	204 00	144 00	19 25	10 00	474 75	852 00
Perry	64 50	62 46	47 00	16 00	219 00	408 96
Powassan	84 50	99 00	83 00	28 00	260 50	555 00
Rosseau	92 00	81 50	32 00	7 50	255 00	468 00
Strong	103 00	56 00	78 50	4 50	293 80	535 80
United Townships	57 00	48 25	32 75	12 25	216 50	366 75
PEEL:						
Albion and Bolton	269 00	64 00	62 50	43 00	332 25	770 75
Caledon	74 23	88 40	40 90	9 00	203 33	415 86
Cooksville	263 00	106 00	39 00	36 00	335 00	779 00
Peel	562 00	220 00	117 00	84 00	668 80	1,651 80
Toronto Tp.	366 00	208 50	90 00	19 00	311 05	994 55
PERTH:						
Elma	90 27	69 37	9 02	17 75	211 34	397 75
Fullarton, Logan & Hibbert	198 00	132 00	73 00	62 00	518 30	983 30
Kirkton	211 50	170 50	41 00	15 00	246 10	684 10
Listowel	141 00	35 00	29 00	28 00	220 70	453 70
Mornington	198 50	86 75	31 00	38 00	300 35	654 60
South Perth	217 00	92 00	67 00	53 00	369 95	798 95
Stratford	285 00	110 00	108 00	42 00	738 16	1,283 16
PETERBOROUGH:						
East Peterborough	200 50	384 50	158 25	45 50	619 80	1,408 55
Galway	28 00	10 50	14 25	3 50	101 40	157 65
Lakefield	114 00	79 00	50 75	35 50	186 55	465 80
Otonabee	173 00	80 00	30 00	18 25	125 70	426 95
Peterborough Industrial	793 00	942 00	181 00	199 00	816 45	2,931 45
PRESCOTT:						
Alfred	86 00	96 50	34 50	22 50	193 85	433 35
South Plantagenet	140 45	115 75	23 50	20 00	125 60	425 30
Vankleek Hill	234 50	262 00	96 00	94 00	416 40	1,102 90
PRINCE EDWARD:						
Ameliasburg	111 75	57 25	46 00	8 25	297 00	520 25
Prince Edward	401 00	535 50	159 00	100 50	871 15	2,067 15
Sophiasburg	84 25	69 50	18 00	5 50	182 65	359 90
RAINY RIVER:						
Atwood	66 00	116 50	27 00	30 00	380 85	620 35
Rainy River Valley	206 00	115 00	63 00	35 00	402 00	821 00
RENFREW:						
Arnprior	300 50	81 50	30 50	17 00	458 00	887 50
Cobden	233 00	130 75	44 50	73 75	226 45	708 45
North Renfrew	280 60	290 00	37 25	56 50	476 65	1,141 00
Renfrew	670 00	480 00	112 25	88 25	686 15	2,036 65
RUSSELL:						
Casselman	50 00	25 00	14 25	5 00	50 07	144 32
Clarence	80 50	44 75	21 50	....	98 85	245 60
Russell	185 35	116 25	104 00	29 00	305 70	740 30

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—*Continued.*

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
SIMCOE:						
Alliston	121 00	14 00	38 50	17 00	300 25	490 75
Barrie	425 00	334 00	192 00	41 00	739 00	1,731 00
Beeton	128 00	116 50	58 00	41 00	201 50	545 00
Bradford & W. Gwillimbury	71 00	47 00	74 00	30 00	370 00	592 00
Coldwater	150 00	90 00	55 00	43 00	257 50	595 50
Cookstown	168 00	61 00	63 50	20 50	319 65	632 65
E. Simcoe	173 50	111 00	184 00	33 00	251 50	753 00
Flos Tp.	251 00	102 00	84 00	8 00	266 80	711 80
Nottawasaga & G. Northern	207 00	133 00	194 00	21 00	396 10	951 10
Oro	194 00	88 00	55 00	10 00	250 50	597 50
Tiny and Tay	278 00	129 00	108 00	58 00	509 02	1,082 02
STORMONT:						
Cornwall	289 00	258 50	83 75	22 00	634 15	1,287 40
Finch	44 00	85 00	5 75	4 50	102 20	241 45
Roxborough	291 00	242 50	30 75	8 75	289 25	862 25
Stormont	101 00	113 75	35 25	22 25	147 60	419 85
SUDBURY:						
Chelmsford	53 50	89 00	36 00	6 00	189 25	373 75
Martland and Cosby	46 00	33 50	14 00	3 00	64 35	160 85
Massey	81 00	58 50	17 50	12 00	166 89	335 89
Warren	106 00	159 00	32 00	26 00	153 00	476 00
TEMISKAMING:						
Charlton	37 00	51 50	15 00	9 00	202 00	314 50
Cochrane	59 00	32 00	....	7 00	136 50	234 50
Engleliart	67 00	90 00	11 75	10 00	320 80	499 55
Matheson	(No Returns)					
New Liskeard	134 00	43 50	....	7 00	452 35	636 85
Porquis Jct.	9 00	14 00	....	1 25	63 00	87 25
THUNDER BAY:						
Oliver	95 50	98 50	12 00	14 00	319 75	539 75
West Algoma	95 00	117 00	22 00	8 00	1,242 50	1,484 50
Whitefish Valley	25 00	31 00	....	11 00	208 10	275 10
VICTORIA:						
Eldon	148 00	64 00	46 00	....	97 45	355 45
Fenelon	135 00	100 00	25 00	22 00	195 15	477 15
Mariposa	96 00	32 00	40 00	4 00	117 65	289 65
South Victoria	818 00	728 00	382 00	129 00	729 40	2,786 40
Verulam	221 70	180 00	60 00	61 00	313 65	836 35
WATERLOO:						
Elmira and Woolwich	159 50	33 50	39 00	34 00	270 50	536 50
South Waterloo	552 00	177 00	184 00	87 00	702 00	1,702 00
Wellesley and N. Easthope	246 00	66 00	57 00	45 00	369 30	783 30
Wilmot	435 00	220 00	93 00	77 00	524 15	1,349 15
WELLAND:						
Bertie	49 00	68 50	28 00	6 25	165 25	317 00
Fenwick	135 25	127 25	52 00	6 00	533 45	853 95
Stamford & Niagara Falls.	(No Returns)					
Thorold Town and Tp.	193 50	111 00	33 75	8 00	265 00	611 25
Wainfleet	(No Returns)					
Welland	403 00	351 50	.. 82 00	17 00	686 60	1,540 10
WELLINGTON:						
Arthur	252 00	155 00	23 55	34 00	259 75	724 30
Centre Wellington	140 50	204 50	79 75	12 00	538 50	975 25
Erin	206 00	52 00	59 25	34 50	443 25	795 00
Mount Forest	319 00	162 00	80 00	60 00	380 40	1,001 40
Palmerston	110 00	59 50	31 00	4 00	194 25	398 75
Peel and Drayton	166 00	117 00	23 00	19 50	283 75	609 25
Puslinch	90 50	87 00	51 50	17 50	208 20	454 70
Rockwood	173 00	198 00	55 00	39 50	360 50	826 00
West Wellington	137 50	59 00	23 50	17 00	331 25	568 25

ANALYSIS OF PRIZE MONEY PAID BY AGRICULTURAL SOCIETIES.—*Concluded.*

Societies.	Horses.	Cattle.	Sheep.	Swine.	Miscellaneous.	Total.
WENTWORTH:	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Ancaster	224 00	84 00	90 00	36 00	366 00	800 00
Binbrook	106 00	95 00	82 50	14 00	265 30	562 80
Hamilton and Wentworth	(No fair)					
Rockton	392 00	117 00	99 00	45 50	405 00	1,058 50
Waterdown	96 00	84 00	8 00	15 50	397 50	601 00
West Flamboro	107 00	14 00	42 00	13 00	222 75	398 75
YORK:						
Markham and E. York	465 25	500 75	263 00	87 00	694 70	2,010 70
Newmarket	295 50	232 00	208 00	89 00	645 75	1,470 25
Queensville	104 00	49 00	60 00	5 00	140 35	358 35
Richmond Hill	474 00	187 00	40 00	55 00	105 25	861 25
Scarboro	349 00	136 00	65 00	39 00	481 75	1,070 75
Schomberg	269 00	88 50	50 25	38 00	393 50	839 25
Sutton	145 50	91 00	28 00	14 00	217 75	496 25
Weston, York & Etobicoke	286 00	64 00	110 00	17 00	482 75	959 75
Woodbridge	565 00	66 00	260 00	124 00	869 75	1,884 75
INDIAN SOCIETIES:						
Garden River	43 00	16 75	....	8 50	64 90	133 15
Sarnia Reserve	18 75	22 00	....	3 50	104 33	148 58
Six Nations	154 55	87 00	11 00	18 00	427 40	702 95
United Indians	82 50	51 00	....	23 00	185 35	341 85
CITIES:						
Canadian National (Toronto)	11,642 00	12,345 00	4,645 00	3,925 00	14,447 50	47,004 50
Central Canada (Ottawa)	5,054 35	4,042 00	674 00	997 00	5.460 01	16,227 36
Western Fair (London)	5.617 00	5,483 00	2,491 50	1.889 00	6,664 50	22.145 00
Total	80.972 97	59,637 75	26.373 04	16,194 45	123,681 22	306,859 43

REPORTS OF STOCK SOCIETIES.

Societies.	RECEIPTS.					EXPENDITURE.			
	Legislative grant.	Members' fees for 1919.	Municipal grant.	Sale of stock.	Total actual receipts.	Purchase of live stock.	Keep of stock.	Officers' salaries.	Total actual expenditure.
	$	$	$	$	$	$	$	$	$
Colchester, North	220	274	150	30	690	497	80	10	599
Cottam	278	594	150	......	1,018	541	45	25	696
Drummond	70	60	50	223	403	320	76	10	413
Dummer and Douro	315	156	......	441	1,198	493	608	17	1,122
Emily	170	125	50	221	616	215	213	17	532
Lakehurst	170	60	......	......	230	275	......	......	275
Oldcastle	385	754	150	......	2,111	1,334	430	67	1,848
Osgoode	225	60	......	15	331	50	240	15	305
South Woodslee	710	1,103	150	......	2,027	1,709	330	81	2,179
	2,543	3,186	700	930	8,624	5,434	2.022	242	7.969

REPORTS OF AGRICULTURAL SOCIETIES IN ONTARIO, SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1919.

Societies.	Receipts.							Expenditure.					
	Legislative grants.	Municipal grants.	Cash Donations.	Members' fees retained from 1918.	Members' fees paid in 1919.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
ALGOMA:	$	$	$	$	$	$	$	$	$	$	$	$	$
Bruce Mines	218	75	74	32	79	227	853	306	50	40	376	862	1,500
Central Algoma	876	......	8	94	367	1,625	3,551	872	938	145	1,009	8,115	15,650
Iron Bridge	113	......	......	23	16	10	166	113	....	13	133	167	....
Johnston and Aberdeen	149	......	2	22	7	17	201	140	....	10	152	186	....
North Shore	139	......	3	28	13	13	363	125	....	20	177	310	290
St. Joseph Island	239	......	......	35	12	24	428	240	....	15	290	468	....
Thessalon	319	50	10	51	26	212	798	286	....	30	354	819	3,000
BRANT:													
Onondaga	145	350	342	37	68	154	1,577	560	160	52	632	1,839	450
Paris	420	150	306	79	265	937	2,819	1,241	90	336	1,327	2,958	8,980
South Brant	450	150	230	68	183	1,317	4,161	1,241	531	235	1,243	3,495	7,300
BRUCE:													
Arran and Tara	309	275	47	108	32	638	1,699	1,038	150	64	1,119	1,637	2,350
Carrick	254	225	26	86	355	257	1,404	776	40	42	876	1,269	....
Chesley	225	200	132	90	80	137	1,090	527	163	50	680	1,204	....
Eastnor	75	......	20	41	26	265	793	208	124	79	260	583	....
Hepworth	171	185	61	81	71	263	971	292	....	52	494	923	....
Huron Tp.	206	125	56	97	38	520	1,338	472	269	77	572	1,230	2,950
Kincardine	153	125	65	62	80	594	1,287	442	388	95	491	1,296	....
Lucknow	234	175	137	92	23	475	1,614	694	35	50	771	1,464	1,000
North Bruce and Saugeen	196	165	10	92	63	264	1,196	603	110	64	682	1,148	....
Paisley	246	200	24	96	83	430	1,475	585	70	120	619	1,228	....
Pinkerton	100	175	57	49	25	76	573	245	15	30	296	480	300
Teeswater	266	125	153	105	41	635	1,764	824	281	50	932	1,757	1,375
Tiverton	135	150	48	59	31	284	1,286	433	107	35	463	977	2,674
Underwood	135	175	20	71	21	161	943	417	....	37	464	671	....
Wiarton	195	235	45	73	67	514	1,400	559	235	85	661	1,361	2,775
CARLETON:													
Carleton County	356	1.000	149	36	60	1,151	3,052	1,131	314	10	1,213	3,104	5,100
Carp	325	100	67	79	50	671	3,295	975	....	125	1,134	1,906	6,625

Fitzroy	200	350	211	54	26	208	1,397	505	26	100	633	1,231	450
Metcalfe	290	625	567	64	67	317	2,310	832	56	125	1,098	2,104	6,800
DUFFERIN:													
Dufferin	322	350	521	109	462	1,069	3,621	1,140	662	295	1,250	3,447	7,100
Dufferin Central	336	275	210	97	229	677	2,599	859	410	143	1,021	3,805	6,925
East Luther	307	285	116	92	79	448	2,057	719	375	85	828	2,149	5,600
DUNDAS:													
Dundas	78	......	88	60	12	1,855	2,540	180	720	80	200	1,463	1,675
Mountain	206	50	234	52	62	846	1.889	580	343	75	684	1,743	....
Winchester	292	50	359	87	115	930	2,929	552	615	90	607	2,223	5,500
DURHAM:													
Cartwright	145	42	......	60	123	235	728	423	....	25	456	631	....
Clarke Tp.	327	197	203	93	57	615	2,202	958	255	100	1,011	1,781	3,500
Millbrook	339	275	86	82	50	939	2,449	892	196	116	1,007	2,159	5,900
Port Hope	410	271	99	100	101	651	2,171	1,107	289	150	1,207	2,261	1,481
West Durham	482	293	229	111	63	1,060	3,116	1,292	573	225	1,398	2,913	6,100
ELGIN:													
Aldboro	227	195	52	70	40	663	1,892	587	293	100	747	1,836	6,812
Aylmer and E. Elgin	300	430	240	....	543	957	3,360	576	509	260	630	2,946	....
Shedden	95	179	147	32	19	302	889	272	133	32	272	675	120
South Dorchester	179	264	89	33	152	223	1,107	517	196	95	584	1,087	....
Straffordville	104	71	14	29	72	279	742	249	135	40	304	705	695
West Elgin	337	142	32	86	57	1,602	3,092	1,152	525	108	1,192	2,714	2,600
ESSEX:													
Amherstburg, Anderdon & Malden	233	450	120	61	29	185	1,283	456	50	40	515	1,156	3,200
Border Cities Agr. & Industrial..	(No fair)												
Colchester South	225	150	107	74	105	630	1,407	618	200	72	649	1,286	3,200
Comber	158	175	110	67	45	470	1,361	216	85	53	281	915	5,300
Essex County	545	525	255	112	212	1,300	3,599	1,844	769	175	1,966	4,384	8,800
Mersea, Leamington & S. Gosfield	473	300	220	123	1,323	2,256	6,472	1,406	963	136	1,452	5,278	20,640
FRONTENAC:													
Kennebec	88	50	......	28	20	42	226	120	20	27	122	207	....
Kingston Industrial	584	500	1,604	102	155	8,345	13,463	2,672	3,667	340	2,781	13.654	2,102
Parham	96	116	65	49	29	358	754	284	221	32	326	792	986
Storrington	79	50	65	36	33	211	764	274	63	35	298	698	1,500
Wolfe Island	110	75	159	35	33	274	887	244	177	30	303	877	....
GLENGARRY:													
Glengarry	218	50	49	73	99	959	2.649	549	794	76	589	2.148	....
Kenyon	153	100	47	60	100	654	1,769	444	30	60	489	1,336	6,125
St. Lawrence Valley	316	......	107	84	111	276	1,463	857	125	45	1,109	1,663	4,620
GRENVILLE:													
Kemptville	(No fair)												
Merrickville	168	150	25	77	6	426	1,100	424	10	77	498	1,084	1,675
Spencerville	159	150	99	77	41	645	1,916	411	183	50	443	1,578	2,500

REPORTS OF AGRICULTURAL SOCIETIES IN ONTARIO, SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1919.—Continued.

Societies.	Receipts.							Expenditure.					
	Legislative grants.	Municipal grants.	Cash donations.	Members' fees retained from 1918.	Members' fees paid in 1919.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
	$	$	$	$	$	$	$	$	$	$	$	$	$
Grey:													
Ayton	124	240	38	63	....	128	575	306	30	34	308	508	....
Collingwood Tp.	147	300	54	56	40	238	855	548	55	65	620	873	425
Desboro	211	190	85	88	206	166	1,137	628	33	38	686	1,020	250
East Grey	126	165	3	52	32	113	962	328	35	53	379	901	1,765
Egremont	160	250	100	70	32	272	1,259	501	84	32	509	967	3,860
Hanover, Bentinck and Brant	164	225	......	79	114	716	1,549	534	514	60	580	1,478	10,550
Holland	179	195	113	80	219	151	1,237	743	20	50	816	1,244	200
Keppel & Sarawak	109	195	15	60	60	63	675	230	40	52	317	607	75
Kilsyth	245	230	116	102	150	292	1,359	721	23	50	790	1,291	2,350
Markdale	228	150	20	69	119	654	1,884	993	309	91	1,029	1,998	230
Meaford and St. Vincent	26	450	213	78	214	572	2,449	678	....	75	808	1,974	13,650
Normanby	92	175	......	57	15	47	442	241	44	27	266	453	....
Osprey	141	190	26	60	14	308	980	363	118	72	449	808	1,030
Owen Sound	404	1,350	311	127	155	2,024	4,874	1,494	712	160	1,562	4,930	3,200
Priceville	109	165	8	41	31	140	630	260	33	32	286	511	850
Proton	254	170	10	103	39	523	1,763	599	345	70	712	1,638	4,200
Rocklyn	204	200	15	69	129	283	1,177	570	....	72	655	1,053	3,850
South Grey	164	150	150	46	143	715	1,757	487	588	60	545	1,656	4,300
Sydenham	121	200	15	64	155	84	716	459	....	42	473	657	500
Walter's Falls	180	215	265	66	260	190	1,750	844	33	75	920	1,645	1,300
Haldimand:													
Caledonia	578	50	20	88	96	2,230	4,695	1,598	772	258	1,600	3,706	8,111
Canboro	63	115	20	22	38	99	456	204	....	20	204	297	1,200
Dunnville	158	125	26	45	317	1,075	3,449	369	538	100	408	3,425	7,000
Haldimand	226	150	60	....	180	533	1,807	508	555	90	614	2,281	3,300
Southern Branch	120	75	37	....	81	234	618	344	32	37	356	604	400
Walpole	193	150	11	....	636	142	1,351	580	327	75	645	1,402	550
Haliburton:													
Glamorgan	No returns												
Haliburton	283	50	13	38	31	160	695	345	313	50	351	773	....
Minden	292	......	......	31	10	176	524	389	....	20	407	565	890

HALTON:													
Acton	262	75	71	145	132	690	1,618	815	337	85	823	1,676	226
Esquesing	262	125	352	110	45	687	1,751	727	372	79	727	1,577	175
Halton	430	275	496	80	93	1,313	3,475	1,141	494	220	1,454	3,305	10,700
Nelson and Burlington	279	275	263	65	400	435	2,050	777	229	75	842	2,070	325
Trafalgar	575	1,650	4,334	178	158	2,514	12,803	4,375	1,206	500	4,381	16,766	30,000
HASTINGS:													
Bancroft	246	100	86	48	46	475	1,790	370	60	91	439	1,513	1,945
Belleville	347	600	149	46	50	1,542	3,550	1,215	777	153	1,277	3,574	....
Frankford	258	100	139	49	38	517	1,289	800	....	100	828	1,146	5,600
Madoc	303	100	189	107	16	892	2,060	715	155	95	854	1,845	360
Marmora	168	155	31	85	63	382	2,462	614	63	53	679	2,425	2,290
Maynooth	107	100	17	22	22	41	359	204	23	27	204	291	....
Shannonville	150	100	15	30	33	601	1,158	382	163	70	402	795	750
Stirling	194	100	157	56	107	495	1,504	605	202	79	705	1,967	2,030
Tweed	222	200	40	93	28	694	1,684	613	150	100	666	1,438	....
Wollaston	215	135	47	47	41	182	995	592	101	30	684	995	....
HURON:													
Bayfield	119	45	24	67	152	258	933	392	121	42	392	777	1,850
Blyth	139	85	46	110	43	478	1,210	430	180	50	396	1,080	2,700
Dungannon	137	25	14	90	36	492	1,096	431	206	60	433	1,032	....
East Huron	226	55	101	100	71	764	1,974	730	473	125	789	2,012	5,600
Exeter	239	65	15	73	86	743	1,778	658	175	64	775	1,630	3,175
Goderich Industrial	255	25	165	78	78	1,338	2,396	773	933	100	814	2,431	....
Howick	189	65	52	90	33	487	1,063	513	51	35	605	878	720
Seaforth	207	......	212	79	154	349	1,668	534	218	65	553	1,481	2,340
South Huron	(Spring Show only)												
Turnberry	200	130	20	108	119	66	1,663	390	....	75	541	1,467	550
Zurich	149	40	......	76	92	394	1,021	424	166	56	467	1,013	1,700
KENORA:													
Dryden	366	50	30	67	109	62	747	340	15	65	420	611	1,200
Kenora	596	210	378	46	42	209	2,541	530	56	320	731	2,197	301
KENT:													
Camden	138	185	38	54	106	797	1,498	406	272	75	426	1,735	3,912
East Kent	249	235	134	83	130	748	2,172	528	508	130	658	1,976	7,450
Harwich	224	225	31	69	51	700	1,824	557	473	143	781	1,784	3,925
Howard	399	200	25	115	60	1,548	2,876	993	353	135	1,081	3,790	8,150
Orford	282	100	85	99	137	349	1,610	686	41	60	820	1,395	3,300
Raleigh and Tilbury	167	150	59	47	42	337	1,300	411	109	52	419	938	2,800
Romney and Wheatley	140	350	100	78	90	419	1,219	335	175	59	358	1,261	3,700
Wallaceburg	140	350	38	51	373	434	1,831	315	294	75	385	2,095	5,125
West Kent	320	1,600	396	56	101	4,069	8,383	1,121	1,827	253	1,176	8,405	27,100

REPORTS OF AGRICULTURAL SOCIETIES IN ONTARIO, SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1919—Continued.

Societies.	Receipts.							Expenditure.					
	Legislative grants.	Municipal grants.	Cash donations.	Members' fees retained from 1918.	Members' fees paid in 1919.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
Lambton:	$	$	$	$	$	$	$	$	$	$	$	$	$
Bosanquet	184	165	60	61	75	253	1,338	450	28	50	482	881	3,510
Brooke and Alvinston	322	325	60	81	59	1,057	2,755	939	276	110	1,041	2,065	6,725
East Lambton	286	100	102	65	125	649	1,490	793	....	40	892	1,283	1,050
Florence	189	185	33	83	451	144	1,374	496	103	62	599	1,032	2,825
Forest	247	270	81	63	153	632	2,018	872	291	95	939	1,772	4,625
Moore	289	250	344	71	162	595	1,916	855	244	114	938	1,661	2,100
Petrolia and Enniskillen	390	500	......	82	41	544	2,059	1,052	166	125	1,235	2,137	3,250
Plympton and Wyoming	201	150	35	63	108	231	965	707	60	43	719	1,034	1,610
Sombra	125	175	36	50	33	243	905	256	100	50	359	1,055	1.105
West Lambton	437	375	968	107	56	2,158	6,121	1,110	1,414	210	1,215	6,869	8,700
Lanark:													
Dalhousie	105	50	2	35	213	236	1,052	322	32	60	350	854	2,465
Lanark Tp.	131	50	118	50	44	284	1,933	385	19	79	451	1,802	1,535
Lanark Village and Bathurst	171	100	147	57	....	438	925	579	78	106	616	1,071	....
Maberly	76	50	39	64	12	144	572	255	59	68	389	683	1,580
North Lanark	453	375	624	39	194	1,926	4,050	1,487	755	205	1,547	3,959	18,250
Pakenham	187	75	154	57	107	362	1,111	542	47	51	550	943	1,245
South Lanark	347	425	654	304	27	1,228	4,769	1,143	1,572	135	1,173	6,388	11,600
Leeds:													
Brockville	......	150	1,045	....	169	3,002	6,297	1,330	1.838	280	1,400	6,478	3,520
Delta	193	150	165	59	45	1,179	2,381	423	644	90	456	2,997	4,000
Frankville	181	150	75	170	18	396	1,085	559	112	50	595	938	450
Lansdowne	189	150	44	....	36	810	1,427	760	374	83	790	1,693	7,375
Lombardy	158	150	41	140	17	315	871	204	205	48	404	711	152
Lennox and Addington:													
Addington	103	225	178	40	95	471	1,164	503	25	40	515	889	....
Amherst Island	140	100	30	29	47	34	429	245	9	25	259	321	....
Ernestown	132	200	50	46	42	584	1,198	602	....	62	613	988	2,650
Lennox	300	500	343	....	645	1,781	4,580	951	944	....	993	4,590	....

LINCOLN:													
Abingdon	81	160	138	53	24	357	963	289	268	33	291	1,113	1,450
Clinton Tp.	258	530	22	....	170	968	2,306	769	332	90	868	2,015	5,070
Monck	94	414	155	72	32	368	1,302	242	572	42	244	1,049	1,840
Niagara Town and Tp.	83	300	170	26	71	145	1,110	295	220	40	347	1,050	....
Peninsular Central	106	200	121	56	30	481	1,164	302	299	70	310	950	3,425
MANITOULIN:													
Billings	339	......	35	61	6	128	590	390	....	38	390	532	2,525
Gore Bay	485	......	25	46	21	229	969	608	....	99	650	986	2,400
Howland	233	......	......	41	82	103	493	311	....	27	329	416	1,000
Manitowaning	339	......	26	48	11	172	556	367	30	67	412	600	700
Providence Bay	315	......	39	38	6	192	600	347	....	20	412	556	600
MIDDLESEX:													
Caradoc	158	150	49	50	76	368	1,307	360	210	50	459	1,206	2,500
Delaware	213	75	246	54	94	584	1,541	560	246	35	560	1,495	780
Dorchester	236	75	180	....	133	763	1,546	633	235	104	683	1,420	....
London Tp.	133	200	294	81	116	352	1,590	376	177	52	469	2,107	2,750
McGillivray	66	50	30	34	14	91	485	176	3	25	201	416	....
Melbourne	259	100	115	94	68	885	1,738	873	319	50	900	1,726	1,825
Mosa and Ekfrid	236	150	196	78	50	566	1,750	594	364	60	637	1,385	5,820
North Middlesex	135	......	73	54	39	383	1,035	394	181	80	424	1,045	870
Parkhill	157	......	169	60	20	209	1,129	435	20	55	435	922	2,500
Strathroy	552	300	297	104	84	1,835	4,906	1,542	1,258	104	1,445	4,481	15,200
Thorndale	136	100	378	36	181	155	1,428	534	66	86	593	1,224	2,650
Westminster	156	75	265	41	75	302	1,035	411	175	50	436	910	200
MUSKOKA:													
Baysville	221	15	47	35	9	15	343	247	....	15	267	310	20
Gravenhurst and Muskoka	437	25	102	45	33	159	984	488	119	75	562	967	400
Medora and Wood	427	90	31	61	34	45	785	382	....	50	475	737	....
Morrison	142	......	......	26	32	70	273	139	....	30	141	245	985
North Muskoka	524	90	229	76	33	107	1,403	452	....	70	538	943	....
South Muskoka	800	180	308	132	51	582	2,560	1,234	167	105	1,360	2,571	2,950
Stephenson and Watt	477	50	47	52	16	101	998	407	48	80	520	942	1,100
Stisted	230	......	19	37	16	43	348	239	....	37	273	358	....
NIPISSING:													
Astorville	149	......	89	22	19	....	275	179	....	25	179	275	600
Bonfield	194	25	......	22	26	36	390	180	....	30	205	350	1,140
East Nipissing	385	......	51	35	4	124	642	384	....	60	412	606	....
North Bay	208	705	41	....	251	863	2,878	351	359	125	351	2,464	100
Sturgeon Falls	533	165	116	56	10	552	1,491	428	364	114	458	1,486	5,850
Verner	489	50	......	53	28	146	899	447	84	20	486	3,796	....
NORFOLK:													
Charlotteville	146	50	51	14	140	392	868	392	30	67	434	662	5,950
Courtland	122	25	105	25	132	161	759	318	....	59	370	691	....
Houghton	131	......	20	31	161	409	810	321	55	131	355	729	1,450

REPORTS OF AGRICULTURAL SOCIETIES IN ONTARIO, SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1919—Continued.

Societies.	Receipts.							Expenditure.					
	Legislative grants.	Municipal grants.	Cash donations.	Members' fees retained from 1918.	Members' fees paid in 1919.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
NORFOLK—*Con.*	$	$	$	$	$	$	$	$	$	$	$	$	$
Norfolk County	618	......	736	......	581	3,333	6,812	2,118	922	250	2,191	10,103	35,000
North Walsingham	121	......	26	34	103	59	471	181	......	52	226	448	400
Townsend	85	25	33	......	138	241	449	267	......	75	277	891	1,500
Windham	122	......	16	23	90	154	824	275	87	40	347	635	700
NORTHUMBERLAND:													
Alnwick	......	......	607	110	58	409	1,483	479	285	45	505	1,476	1,050
Brighton	278	132	123	79	30	634	1,616	665	106	59	710	1,378	......
Cobourg Central	......	50	80	10	78	312	899	754	135	75	792	1,383	20,700
Colborne	282	83	274	56	58	737	1,931	1,096	47	57	1,141	1,699	925
Cramahe	No Returns												
Percy Tp.	536	159	416	103	65	1,365	3,001	1,763	115	90	1.783	2,984	5,050
Seymour	269	280	196	83	220	741	1,946	841	185	160	1,022	2,119	4,000
Wooler	154	46	107	47	32	454	970	487	15	35	547	1,106	775
ONTARIO:													
Beaverton	227	200	141	74	161	613	2,179	565	702	140	676	2,303	7,200
Brock	210	125	259	58	78	354	1,498	554	295	56	567	1,340	......
Port Perry, Reach and Scugog	253	......	207	73	52	346	1,137	720	303	......	722	1,457	1,500
Ramona	40	10	9	17	29	47	170	129	......	6	129	162	386
Scott	137	25	221	39	53	201	834	366	35	52	380	846	......
South Ontario	591	250	723	129	89	3,443	6,877	1,955	1,127	205	1,966	5,844	7,800
Uxbridge	203	......	......	47	52	1,081	1,996	773	492	174	775	1,963	......
OXFORD:													
Drumbo	344	50	70	53	74	711	1,755	1,010	70	92	1,067	1,577	315
East Nissouri	150	75	128	29	216	185	1,010	304	76	54	367	817	......
Ingersoll, N. and W. Oxford	181	200	183	39	163	521	1,833	517	347	150	541	1,717	2,600
North Norwich	235	160	267	59	183	411	1,936	611	280	100	638	1,752	2,000
South Norwich	139	50	160	120	181	262	1,065	531	80	52	580	1,011	1,700
Tavistock	289	115	130	107	44	329	1,324	751	129	100	793	1,316	......
Tillsonburg and Dereham	267	......	119	72	199	950	2,178	841	651	105	863	2,162	8,000

West Zorra and Embro	214	50	25	62	213	529	1,139	609	32	47	639	1,286	550
Woodstock	525	400	742	70	121	2,110	5,555	1,881	1,225	250	1,990	5,004	20,200
Parry Sound:													
Armour, Ryerson and Burk's Falls	657	100	220	67	19	230	1,569	792	100	100	864	1,427	2,875
Christie	385	35	28	50	21	35	815	391	....	50	467	734	100
Loring	228	......	5	45	20	39	513	312	....	27	339	464	675
Machar	284	50	127	32	29	78	936	277	....	53	345	654	2,825
Magnetawan	380	80	78	57	42	35	844	432	....	40	542	811	545
McKellar	569	25	82	63	26	97	1,644	715	....	39	785	1,223	2,300
McMurrich	392	25	138	43	14	82	1,069	367	....	70	465	989	1,225
Parry Sound	637	420	84	87	119	600	2,571	852	417	220	872	2,582	7,600
Perry	475	50	128	50	2	37	844	409	....	55	483	769	2,345
Powassan	457	......	112	48	20	198	1,732	555	88	61	625	2,488	2,836
Rosseau	490	......	55	68	19	113	990	468	....	62	583	841	....
Strong	323	......	145	42	13	86	863	536	12	32	617	807	1,860
United Townships	368	......	65	80	10	44	1,054	367	....	22	433	637	....
Peel:													
Albion and Bolton	306	300	131	86	34	570	1,662	771	291	60	791	1,407	2,200
Caledon	166	230	189	60	265	236	1,393	416	348	125	483	1,344	760
Cooksville	301	150	338	136	66	604	1,801	779	69	90	812	1,501	2.000
Peel	499	440	548	84	132	1,873	4,578	1,661	365	284	1,668	4,335	8,300
Toronto Tp.	293	310	283	156	85	336	1,923	995	133	....	1,077	2,260	2,800
Perth:													
Elma	125	104	66	73	273	208	1,198	398	....	62	437	839	1,450
Fullarton, Logan and Hibbert	351	282	314	110	66	711	2,291	983	158	106	1,046	2,025	3,610
Kirkton	215	235	60	92	283	424	1,579	684	116	104	763	1,436	2,500
Listowel	160	56	176	69	45	352	1,158	454	76	75	497	867	2,300
Mornington	213	220	39	93	453	801	4,409	655	250	205	666	4,820	6,150
South Perth	228	325	35	76	257	572	2,130	799	298	100	822	2,295	6,500
Stratford	456	289	439	136	299	1,719	4,536	1,283	544	125	1,433	3,875	....
Peterborough:													
East Peterborough	470	175	145	80	65	1,819	3,087	1,409	515	154	1,475	2,823	3,335
Galway	100	145	124	26	26	266	705	158	274	25	158	617	2,600
Lakefield	160	175	81	58	16	417	1,247	466	197	25	491	1,166	3.800
Otonabee	153	75	62	63	38	280	1,008	427	145	37	493	954	1,110
Peterborough Industrial	790	3,175	3,498	143	84	7,703	18,922	2,931	3,287	185	3,008	21,871	....
Prescott:													
Alfred	137	100	84	89	52	376	1,088	433	75	40	507	1,056	2,400
South Plantagenet	133	100	118	48	12	249	707	425	36	40	433	643	300
Vankleek Hill	395	100	193	108	239	919	2,917	1,103	115	102	1,169	2,033	8,100
Prince Edward:													
Ameliasburg	206	350	38	62	135	186	1,247	520	17	77	610	1,065	....
Prince Edward	700	1,200	447	58	1,409	3.559	10,318	2,067	1,817	305	2,293	9,195	30,000
Sophiasburg	132	200	74	39	37	213	814	360	....	25	391	557	....

REPORTS OF AGRICULTURAL SOCIETIES IN ONTARIO SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1919—Continued.

Societies.	Receipts.							Expenditure.					
	Legislative grants.	Municipal grants.	Cash donations.	Members' fees retained from 1918.	Members' fees paid in 1919.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
	$	$	$	$	$	$	$	$	$	$	$	$	$
RAINY RIVER:													
Atwood	568	180	280	59	38	73	1,311	620	....	125	791	1,307	....
Rainy River Valley	608	365	719	74	45	466	2,624	821	155	110	907	2,780	4,415
RENFREW:													
Arnprior	359	325	326	135	443	880	2,891	887	563	215	925	2,949	6,450
Cobden	261	130	239	113	43	731	2,886	708	105	79	791	2,395	8,000
North Renfrew	421	200	511	80	142	936	4,064	1,141	537	158	1,235	3,423	19,250
Renfrew	694	675	3,165	21	385	3,579	11,080	2,037	575	200	2,151	12,483	34.380
RUSSELL:													
Casselman	45	175	163	27	52	71	601	144	9	55	144	375	5.300
Clarence	99	100	......	45	13	291	550	246	....	50	252	779	1.100
Russell	229	175	387	67	53	726	2,103	740	515	102	753	2,050	....
SIMCOE:													
Alliston	186	......	80	73	60	875	1,433	491	213	50	519	1,102	....
Barrie	441	500	612	112	125	1,694	4,510	1,731	659	175	1,816	4,354	....
Beeton	162	40	288	49	104	287	1,396	545	166	109	562	1,351	2,550
Bradford and W. Gwillimbury	181	......	97	72	115	673	1,829	592	467	79	608	2,234	6,500
Coldwater	167	100	208	62	29	736	1,694	595	160	60	630	1,423	2,575
Cookstown	203	95	125	109	25	377	1,214	633	130	90	665	1,213	1,330
East Simcoe	......	500	365	....	200	1,051	3,312	833	174	175	851	2,476	1,000
Flos Township	194	150	196	73	58	1,005	2,561	712	417	110	756	3,116	4,425
Nottawasaga and G. Northern	284	275	239	76	74	2,203	3,979	951	1,063	225	1,060	4.351	1,600
Oro	209	50	268	102	80	381	1,319	597	157	85	617	1,074	400
Tiny and Tay	159	125	144	....	225	1,383	2,639	1,082	479	65	1,106	3,551	1,564
STORMONT:													
Cornwall	329	250	138	89	81	2,377	4,465	1,287	936	250	1,323	4,343	3,350
Finch	75	50	149	23	45	211	643	241	47	23	270	537	400
Roxborough	246	100	354	61	164	632	1,672	862	40	34	892	3,537	2.650
Stormont	164	50	156	....	113	331	884	420	....	22	446	620	525

SUDBURY:													
Chelmsford	282	140	......	58	196	82	1,277	338	66	....	356	878	1,010
Martland and Cosby	157	......	......	50	11	....	204	161	....	15	167	221	150
Massey	396	......	......	55	44	202	829	336	....	118	389	789	2,950
Warren	326	......	......	40	29	91	1,326	476	143	37	539	1,355	800
TEMISKAMING:													
Charlton	336	65	44	35	45	104	839	314	33	79	447	789	1,985
Cochrane	252	25	351	42	38	138	859	234	....	50	346	575	....
Englehart	427	125	122	60	36	86	1,338	500	35	81	626	1,280	3,215
Matheson	No Returns												
New Liskeard	556	150	134	71	44	353	1,667	637	....	104	767	1,616	6,050
Porquis Jct.	67	......	......	8	58	14	244	87	....	....	129	187	....
THUNDER BAY:													
Oliver	464	50	157	85	33	396	1,729	540	141	79	610	1,479	5,150
West Algoma	900	3,000	466	131	122	3,487	9,429	1,484	1,855	430	1,718	9,133	43,171
Whitefish Valley	249	......	177	53	24	49	843	275	13	55	333	905	300
VICTORIA:													
Eldon	129	50	118	....	50	....	870	355	57	42	383	655	....
Fenelon	174	110	51	54	12	175	689	477	....	25	524	739	....
Mariposa	110	50	157	37	45	208	878	290	72	40	290	681	....
South Victoria	800	......	867	103	90	6,121	10,641	2,786	1,926	460	2,816	10,807	19,875
Verulam	298	75	121	78	56	728	1,888	836	74	53	892	1,778	6,800
WATERLOO:													
Elmira and Woolwich	174	300	223	88	32	851	1,801	536	220	45	556	1,458	4,500
South Waterloo	548	800	576	....	262	780	3,566	1,702	238	200	1,780	3,285	1,400
Wellesley and N. Easthope	221	375	52	126	108	217	1,386	778	140	75	812	1,497	2,500
Wilmot	300	410	415	82	66	727	2,379	1,349	19	100	1,407	2,449	400
WELLAND:													
Bertie	146	305	102	30	112	240	1,131	317	96	60	385	1,098	....
Fenwick	321	441	80	69	101	1,164	3,208	854	568	100	942	2,893	5,990
Stamford and Niagara Falls	No Returns												
Thorold Town and Township	161	901	296	52	76	1,028	3,147	611	937	120	660	2,967	12,330
Wainfleet	No Returns												
Welland	475	320	1,105	86	208	4,370	9,140	1,540	1,442	177	1,566	5,912	27,100
WELLINGTON:													
Arthur	255	120	121	98	260	984	3,549	724	985	145	779	2,751	2,500
Centre Wellington	376	170	222	105	110	591	2,471	975	417	150	1,103	2,946	....
Erin	310	75	177	125	106	185	1,874	795	20	95	871	1,809	2,400
Mount Forest	339	70	231	162	130	511	2,079	1,001	165	65	1,051	1,782	2,800
Palmerston	147	10	66	63	31	308	812	399	165	45	431	1,187	2,990
Peel and Drayton	169	55	244	63	24	437	1,273	609	176	74	611	1,256	2,000
Puslinch	177	50	......	54	527	244	1,235	455	45	66	513	1,155	200

REPORTS OF AGRICULTURAL SOCIETIES IN ONTARIO, SHOWING RECEIPTS AND EXPENDITURE FOR THE YEAR 1919—Concluded.

Societies.	Receipts.							Expenditure.					
	Legislative grants.	Municipal grants.	Cash Donations.	Members' fees retained from 1918.	Members' fees paid in 1919.	Gate receipts at exhibitions.	Total actual receipts.	Total prize money paid in cash.	Special attractions.	Officers' salaries.	Total expenditure for agricultural purposes.	Total actual expenditure.	Value of land and buildings.
WELLINGTON.—*Continued.*	$	$	$	$	$	$	$	$	$	$	$	$	$
Rockwood	234	75	426	72	114	482	1,768	826	50	65	939	1,571	3,100
West Wellington	158	40	87	68	75	296	1,142	568	126	60	579	1,120	1,925
WENTWORTH:													
Ancaster	248	300	196	50	163	1,033	2,471	800	524	140	876	2,104	4,380
Binbrook	121	150	354	70	123	350	2,171	563	407	35	565	2,040	3,200
Hamilton and Wentworth	(No	Fair)											
Rockton	360	175	165	......	279	1,148	2,986	1,058	287	125	1,068	2,568	151
Waterdown	191	200	200	......	102	181	1,128	571	66	50	598	1,151	......
West Flamboro	138	175	127	51	55	275	1,158	399	95	77	439	1,189	127
YORK:													
Markham and E. York	718	250	791	114	93	2,626	6,486	2,011	733	250	2,128	5,772	21,900
Newmarket	451	200	617	105	81	1,859	4,790	1,470	1,189	175	1,472	4,336	1,545
Queensville	......	75	192	......	90	93	550	358	25	35	358	576	......
Richmond Hill	244	385	226	61	52	600	2,080	861	55	79	890	2,384	4,276
Scarboro	360	100	931	91	65	358	3,398	994	30	125	1,071	3,181	5,284
Schomberg	222	85	172	65	37	578	1,600	839	135	53	841	1,446	3,500
Sutton	159	90	270	61	108	293	990	562	380	60	596	1,488	......
Weston, York and Etobicoke	264	200	452	105	88	1,227	2,674	960	430	150	992	2,841	1,800
Woodbridge	600	200	313	82	74	3,407	5,866	1,884	155	210	1,942	6,218	18,400
INDIAN SOCIETIES:													
Garden River	50	75	11	......	45	29	447	133	13	......	133	334	......
Sarnia Reserve	......	......	19	23	8	80	312	149	70	......	149	290	......
Six Nations	100	......	......	61	38	1,260	2,031	703	453	106	718	2,031	3,530
United Indian	100	150	85	49	33	186	731	342	150	25	367	710	......
Totals	85279	64981	64256	21,346	34,704	224,526	662,694	221,809	90,557	29,114	240,397	652,776	1136893

Ontario Department of Agriculture

APPENDIX

TO

ANNUAL REPORT

OF THE

Agricultural Societies

1920

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS AND
PRIZE-WINNING GRAIN AT WINTER FAIRS

THE CANADIAN NATIONAL AND CENTRAL CANADA EXHIBITIONS

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

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1921

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APPENDIX

TO

REPORT OF AGRICULTURAL SOCIETIES

The season of 1920 proved much more favorable for the growth of crops than the two previous years, and, with the exception of hay, bountiful crops were the rule in nearly every section of the Province. The growth of corn was tremendous, and the harvesting of this crop for seed and ensilage purposes kept farmers busy to a later date than usual and delayed fall plowing in consequence.

The Standing Field Crop Competitions are becoming increasingly popular, and Societies which had not previously entered are falling into line. One hundred and seventy-eight societies took up this line of work in 1920, as compared with 162 during the previous year, one hundred and twenty-one in two crops and fifty-seven in one. One hundred and fifty-six societies entered in oats, seventeen in spring and nineteen in fall wheat, five in barley, fifty-three in potatoes, forty-two in corn, four in turnips and one in peas, mangels and clover respectively.

The prizes offered at the Guelph Winter Fair in 1920, for grain and roots from the Standing Field Crop Competitions brought out the largest exhibit that has ever been made at that exhibition. The prices realized at the auction sale of grain and potatoes were considerably below those obtained in 1919. The highest price for the first prize oats which also won the championship prize over all similar grain at the Winter Fair was $6.25 for two bushels. The first prize fall wheat in the Field Crop exhibit also won the championship. Standing Field Crop Competitors were highly successful in winning a number of first prizes at the Chicago International. It is the opinion of many farmers of Ontario that these competitions are continuing to be the means of producing the finest seed grain in the Province.

J. Lockie Wilson, *Superintendent.*

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
ALGOMA.		(20)	(25)	(10)	(20)	(25)	(100)	
BRUCE MINES AGR. SOCIETY.								
Judge—J. A. McDermid, Collingwood, R.R. 2.								
Sam'l. Rowe, Bruce Mines....	O. A. C. 72......	14½	22	8	19	19	82½	2
R. S. McEwen, do	Tartar King	14	22	8	19	18	81	17
John Carter, Portlock	....	15	20	8	16	20	79	2, 17
Jos. Rogers, Jr., Bruce Mines...	O. A. C. 72......	15	20	8	14	20	77	5,4, 2
N. S. Pace, do R.R.1	do	14½	21	7	18	16	76½	
Wm. Vaughan, do R.R.1	Tartar King......	14¾	21	7	16	17	75¾	15,2
R. Jeffery, do ...	Granary Filler...	13½	22	7	16	16	74½	2
Fred. Hopper, do R.R.1	Banner..........	12½	22	6	16	16	72½	2,17
H. Skuskey, do R.R.3	O. A. C. 72......	13	20	7	16	16	72	2,15
Chas. Hopper, do R.R.1	Banner..........	12½	22	5	16	15	70½	2,15,17
NORTH SHORE AGR. SOCIETY.								
Judge—J. A. McDermid, Collingwood, R.R. 2.								
Hugh Henry, Bar River	Northland.......	17½	22	8	17	22	86½	
H. S. Chappell, do	Siberian.........	16¼	20	8	19	20	83¼	13
Alex. Brodie, do	Northland.......	17½	22	7	15	20	81½	
Alex. Stewart, do	do	16¼	20	8	15	21½	80¾	2,15,17
A. L. Tuckett, Echo Boy	Imp. Ligowa.....	16	20	7	17	20½	80½	
E. V. Evoy, Bar River	Northland.......	16¼	20	7	16	21	80¼	10,17
R. Evoy, do	do	16¼	20	6	17	20	79¼	
P. Evoy, do	do	16	20	6	17	20	79	2
Wm. Barkley, do	do	13¼	22	9	17	17¼	78½	15
Jno. Booth, do	do	16¼	21	5	17	19	78¼	2
C. Moore, MacLennan	New Ligowa.. ...	14½	22	7	15	19	77½	15,10
Jno. E. Johnson, Echo Bay	Northland.......	15	20	7	16	20	78	
W. C. Cook, Bar River	do	15	20	6	16	20	77	1
J. A. Davidson, MacLennan	do	14	20	7	17	17	75	15
ST. JOSEPH ISLAND AGR. SOCIETY.								
Judge—J. D. McKenna, North Bay.								
Geo. Hadden, Richard's Landing	O. A. C. 72......	16	23	8	18	21	86	15
Thos. White, Sr., do	Imp. Cluster.....	16	23	8	18	20	85	
Wm. Hadden, do	O. A. C. 72......	16	23	7	18	20	84	15
Walter Lay, do	Banner..........	16	22	8	16	20	82	14,15
C. Rains, do	do	16	22	8	15	20	81	15
W. H. Canfield, do	Mammoth Cluster	16	20	8	16	20	80	15,14
Geo. Smedley, do	do	16	21	8	14	20	79	15
Chas. Young, do	O. A. C. 72......	15	21	8	14	20	78	15
Edgar Rains, Sea Gull	Daubeney........	14	20	7	18	18	77	15,14
B. V. Rains, Richard's Landing	Banner..........	13	20	8	16	19	76	15,14
H. Matheson, do	O. A. C. 72......	15	15	8	17	20	75	15,14

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, method of seeding and absence of lodging.

†Yield and quality of grain—Considering proportion of well-filled heads of plump grain of good quality and uniformity of maturity.

‡See key page.

§Points deducted for non-standard variety.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
ALGOMA.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
THESSALON AGR. SOCIETY.								
Judge—J. D. McKenna, North Bay.								
Alex. Duff, Bruce Mines, R.R. 1	O. A. C. 72......	16	23	7	19	22	87	15
Proud Bros., do	Granary Filler..	16	22	8	17	22	85	
Nelson King, Thessalon, R.R. 1	O. A. C. 72......	16	22	8	16	21	83	15
Jos. Broughton, Livingston Cr'k.	Irish............	16	21	7	16½	22	82½	4,15
Robt. Horrick, Bruce Mines, R.R.1	O. A. C. 72......	15	20	8	18	21	82	
D. McLennan, Livingston Creek	McLennan's Surprise.......	14	21	7	18	20	80	
Jos. Rowan, Thessalon, R.R. 1	English.........	16	14½	9	18	22	79½	1
Thos. Cordukes, do R.R. 2	O. A. C. 72......	14	21	8	18	18	79	17
Jos. Walker, do R.R. 2	Mammoth Cluster	13	20	7	18	20½	78½	15
Wm. P. Weir, do R.R. 2	McLennan's Surprise.......	14	17	8	18	20	77	10
Jas. Mills, Bruce Mines, R.R. 1	O. A. C. 72.......	16	18	7½	14	21	76½	15
A. J. Bell, Sowerby	do	13	22	6	17	18	76	
Jno. McDougall, do	Banner..........	13	22	6	16	18	75	
Jno. D. McLennan, Thessalon, R.R. 2	Dodds..........	15	22	7	11	19	74	
BRANT.								
ONONDAGA AGR. SOCIETY.								
Judge—Allan R. G. Smith, New Hamburg, R.R. 1.								
Geo. Thomson, Cainsville, R.R. 1	Am. Banner......	19	24	10	19	23	95	
F. Pappal, do	do	18	24	10	19	23	94	10,4
A. W. Hamilton, do R.R. 2	O. A. C. 72......	18½	23½	9	18½	23½	93	
A. W. Pate, Paris, R.R. 4......	Imp. Banner.....	17½	23½	9	18½	23½	92	
M. N. Simpson, Cainsville, R.R.1	O. A. C. 72......	18	22½	8½	18½	23½	91	
D. Thompson, do R.R.1	Banner..........	17	22½	8½	18½	23½	90	10
Geo. E. Wood, do R.R.1	O. A. C. 72.......	17½	20½	8½	18½	24	89	2
A. A. Barton, do R.R.1	do	16	22½	8	18½	23	88	
Hy. Preiss, Middleport, R.R. 1	Reg. Banner.....	16	22	8	18	23	87	
T. Thompson, Onondaga, R.R. 2	do	16	22	8	18	23	87	
D. B. Campbell, Cainsville, R.R. 2	O. A. C. 72.......	16	22	8	18	23	87	
PARIS AGR. SOCIETY.								
Judge—Allan R. G. Smith, New Hamburg.								
Fred. Luck, Paris	O. A. C. 72.......	20	24	9½	19½	23	96	
D. Patton, do	do	20	24	9	19½	23	95½	
Allan Edgar, Brantford	Imp. Banner.....	20	24	9	19	23	95	
W. D. Barker, Paris	O. A. C. 72......	20	23½	9	19	23	94½	
Jos. Martin, do	Imp. Banner.....	19½	23½	9	19	23	94	
R. J. McCormick, Brantford	O. A. C. 72.......	19½	23½	9	18½	23	93½	
John Doyle, Paris	do	19½	23½	9	18½	22½	93	
Theo. Sehls, do	do	19½	23½	9	18½	22	92½	
A. Howell, St. George	Banner..........	19½	23	9	18½	22	92	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRANT.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
PARIS AGR. SOCIETY.—*Con.*								
E. Daniels, Princeton	Banner..........	19½	23	9	18½	21½	91½	
S. Carr, Paris	O. A. C. 72......	19½	23	9	18	21½	91	
J. H. McGill, Princeton	Banner..........	19½	23	9	17½	21½	90½	14
D. A. Holmes, Paris	O. A. C. 72......	19	23	9	17½	21½	90	
W. Parnell, Richwood	do	18½	23	9	17½	21½	89½	10
Jno. McCrow, Paris	do	17½	23	9	17½	22	89	
W. N. Howell, St. George	Banner..........	17	23	9	17½	22	88½	
A. Deans, Paris	O. A. C. 72......	17	22½	9	17½	22	88	
A. Clement, do	Banner..........	17	22½	9	17½	21½	87½	
W. Webber, do	O. A. C. 72......	17	22½	9	17½	21	87	
Chas. Jarvis, do	....	17	22½	9	17	21	86½	
Wm. Dawson, do	Banner..........	17	22½	9	16½	21	86	
Chas. Osborne, do	Higleys Prize Winner........	17	22	9	16½	21	85½	
Roy Howell, St. George	Banner.........	17	22	9	16	21	85	
Geo. Parkhill, Brantford	....	17	22	8½	16	21	84½	
Jno. Weir & Sons, Paris	Early Alaska.....	17	22	8	16	21	84	
Jno. Dawson, Burford, R.R. 1..	Golden Fleece....	16½	22	8	16	21	83½	
A. Cain, Princeton	O. A. C. 72......	16½	21½	8	16	21	83	
R. Howell, St. George	Banner..........	16½	21½	8	16	21	83	
Geo. Bone, Paris	do	16½	21½	8	16	21	83	
R. Hammond, do	....	16½	21½	8	16	21	83	
A. Gilbert, do	....	16½	21½	8	16	21	83	
BRUCE.								
ARRAN AND TARA AGR. SOCIETY.								
Judge—Geo. Binnie, Priceville, R.R. 2.								
G. P. Kennedy, Tara	Banner..........	18	24	9	19	23	93	
Frank Sim, do	do	16	24	9	19	22	90	
Geo. Neil, do	do	17½	22	9	19	22	89½	14,15,2
Geo. Dolphin, do	do	16	24	9	18	22	89	15,14
N. McDougald, do	do	16½	22	8	19	22	87½	15
Jas. F. Young, do	do	16	24	9	17	21	87	14
M. W. Sinclair, do	do	16	20	9	18	22	85	15,14,2
Sam'l McMullen, do	Abundance.......	15½	22	9	17	21	84½	14,15
Geo. H. Munson, do	Banner..........	15½	20	8	18	22	83½	14
Geo. Angel, do	do	15½	21	7	15	22	80½	
CARRICK AGR. SOCIETY								
Judge—Arch. Greer, Mansfield, R.R. 1.								
Jas. L. Tolton, Walkerton	O. A. C. 72......	19	24	8	19	24½	94½	
N. Durrer, Mildmay	Golden Flake.....	19	24	8	19	24	94	14
G. B. Armstrong, Teeswater ...	Banner..........	19½	22	9	18	24	92½	15
Andrew Schmidt, Mildmay	do	16½	23	9	20	22½	91	15
M. Weiler, Formosa	O. A. C. 72.....	18½	23	8	19	21	89½	1,15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
CARRICK AGR. SOCIETY.—*Con.*								
Jno. Lints, Mildmay	O. A. C 72	17½	20	8	19	22	86½	2
D. Borho, Formosa	do	15½	21	8	19	20	83½	2,15
S. Schmidt, do	Abundance	15½	20	7	19	20	81½	1,2
W. A. Rowand, Walkerton, R.R.1	O. A. C. 72	13½	22	5	18	20	78½	14
W. A. Tolton, do	Banner	20	....	9	19	25	73	1
CHESLEY AGR. SOCIETY.								
Judge—Arch. Greer, Mansfield, R.R. 1.								
Robt. Sloan, Chesley	O. A. C. 72	18	22	8	18	23	89	15
Jno. Oswald, do	do	17	21	9	18	22½	87½	15
M. Thompson, do	do	16½	21	7	18	23	85½	
P. McTavish, do	do	17½	20	7	18	22	84½	15
Fred. Lowe, do	do	16½	21	7	18	21	83½	15
T. Oswald, do	Siberian	15	20	8	17	20	80	15,2,14
S. K. Ewart, do	O. A C.	17	13	9	18	22	79	15,1
Robt. Milburn, do	Bumper King	12½	18	7	18	21	76½	2,15
W. Thomson, do	Banner	15	20	4	15	19	73	2,15
EASTNOR AGR. SOCIETY.								
Judge—Arch. Greer, Mansfield, R.R. 1.								
R. E. Cameron, Lion's Head, R.R.1	Banner	19	23	8	18	23	91	15
A. P. Bray, do	O. A. C. 72	18½	24	7	18	21	88½	
S. L. Rutherford, do	Banner	17½	22	7	17	22	85½	
Wm. G. Bray, Sr., do R.R.1	O. A. C 72	17	21	6	18	22½	84½	2,15,14
F. Cameron, do R.R.1	do	17	20	8	16	22	83	15
A. Mielhausen, do	Banner	17	21	6	16	22	82	15
Jos. Bray, do	O. A. C. 72	17½	21	3	16	21	78½	15
R. Shouldice, Burrow Bay	Banner	13	20	6	15	19½	73½	15,12
J. A. Dickie, Lion's Head	O. A. C. 72	16	18	6	14	18½	72½	15,14
HEPWORTH AGR. SOCIETY.								
Judge—Geo. Binnie, Priceville, R.R. 2.								
Geo. Miller, Allenford	Imperial	17½	24	9	19	23½	92	
Chas. Walker, Hepworth	O. A. C. 72	17½	24	9	18	23	91½	
H. Hewitson, Owen Sound, R.R.5	Imp. Banner	18	23	9	19	22	91	15,2
Jas. Tomlinson, Hepworth	O. A. C. 72	16½	23	8	19	22½	89	15
H. Anderson, do	do	16	24	9	17	22	88	
C. A. Millard, do	do	16	24	7	18½	22	87½	
A. T. Baldwin, Wiarton, R.R. 2	do	16	22	8	19	22	87	12,14
Wm. Pringle, Shallow Lake	do	15	23	9	17	22	86	15,14
T. E. Evans, Allenford	Banner	15½	22	8	18	22	85½	10,15
L. Schnurr, Shallow Lake	White Marble	16	23	6	18	22	84⅜	
C. A. Barfoot, do	White Wave	16	22	8	16	21	82⅜	12,14

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
HURON TP. AGR. SOCIETY.								
Judge—J. W. Patton, Rocklyn, R.R. 2.								
Jno. H. Reid, Ripley, R.R. 1	O. A. C. 72......	18¼	22	8	19	23½	90¾	
L. B. Reid, Kincardine, R.R. 1	Imp. Banner.....	18	22	9	18	23	90	
Geo. T. Brooks, Lucknow, R.R. 6	O. A. C. 72......	18	23	8	18	22¾	89¾	15
W. B. Walden, Ripley, R.R. 1..	Imp. Banner.....	17½	21	8½	19	23½	89½	2
T. J. Scott, do R.R. 1..	Siberian.........	18	22	8	18	23	89	
D. Campbell, do R.R. 3..	O. A. C. 72.......	18	20¾	9	19	22	88¾	14
W. C. Smith, do	do	17	24	8	17	22	88	15
Jos. Collings, do R.R. 1..	Imp. Ligowa.....	15	25	8	17	22	87	
W. B. Steele, do R.R. 1..	O. A. C. 72......	17	21	8	18	22	86	
W. D. Bradley, do	do	17	20	8	18½	21½	85	2
J. Roulston, do	Sensation........	16	24	7	17	20	84	
H. Courtney, do R.R. 1..	Imp. Banner.....	14½	20	8	15	20	77½	15
LUCKNOW AGR. SOCIETY.								
Judge—E. I. McLoughry, Markdale, R.R. 4.								
W. Henderson, Lucknow, R.R. 3	O. A. C. 72......	19	25	9	18	24	95	
Jno. Webster, do R.R. 2	Banner..........	18	25	9	19	23½	94½	
Jno. McLeod, do R.R. 5	Danish..........	18½	25	9½	20	23	94§	
K. R. McKenzie, do R.R. 5	O. A. C. 72......	18½	22	9½	20	23½	93½	
P. Watson, do R.R. 1	20th Century.....	17½	25	8	20	23	91½	§
W. A. Wilson, do	Abundance.......	16	25	10	20	20	91	
W. J. Irwin, do R.R. 6	O. A. C. 72.......	16½	25	9	18	22	90½	
Jas. Alton, do R.R. 7	Abundance.......	19½	22	9	18	20	88½	1
Baird Bros., do R.R. 3	O. A. C. 72	18	16	9	18	20	81	1,2
D. McCharles, do R.R. 6	Sensation........	14	22	7	15	22	78§	15
J. W. Henderson, do R.R. 3	Lincoln..........	16	20	6	14	19	73§	2
W. J. Roulston, do R.R. 6	O. A. C. 72......	17	8	8	18	21	72	1,11
Sam'l Phillips, do R.R. 2	do	15½	20	3	14	19	71½	15
NORTH BRUCE AND SAUGEEN AGR. SOCIETY.								
Judge—J. C. Duff, Tara.								
W. Bulger, Pt. Elgin, R.R. 1..	O. A. C. 72......	18½	24	9	19	23	93½	
W. J. Pierson, do R.R. 2..	do	18	24	8½	19	23	92½	
W. S. Airth, North Bruce, R.R. 1	do	19	24	9	15	24	91	
Alex. Lamont, Pt. Elgin, R.R. 3	do	17½	24	8	18	22½	90	
Chas. Lang, Southampton, R.R. 1	Gold Rain........	19	24	9	14	24	88§	
F. W. Elliott, Pt. Elgin, R.R. 2	$1,000..........	17½	23	8	19	22	87½	§
J. W. Anderson, do R.R. 1	O. A. C. 72......	15½	24	7	15	20½	82	
J. Witting, do	do	17½	15	7½	18	23	81	
N. B. Snyder, do R.R. 3	Green Mountain..	18	15	8	18	22½	79½	§
Alex. Geddes, do R.R. 2	O. A. C. 72......	15½	16	8	18	20½	78	
Jno. Baker, do R.R. 3	Green Mountain..	15	16	8	18	20½	77½	
Alex. Brunton, do R.R. 1	O. A. C. 72......	15	16	8	15	20½	74½	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
PINKERTON AGR. SOCIETY.								
Judge—J. C. Duff. Tara								
D. Pinkerton, Pinkerton	O. A. C. 72	19	24	9	19	23½	94½	
J. Holm, Walkerton, R.R. 4	do	18½	24	9	19	23½	94	
Garland Bros., Pinkerton	do	18	24	9	19	23½	93½	
E. Tolton, Walkerton	Banner	17½	24	9	19	23½	93	
Wm. J. Cruickshank, Pinkerton	O. A. C. 72	16½	24	8	19	22½	90	
Jno. Mutrie, do	do	16½	24	8½	19	21½	89½	
H. H. Young, Eden Grove	Am. Banner	14	24	8½	19	20½	86	
W. T. Stewart, Glamis	O. A. C. 72	15½	22	8	18	21½	85	
A. Alexander, Pinkerton	Banner	15½	23	8	16	21½	84	
D. Elpkick, do	White Wave	16½	17	7	18	21½	78⅔	
H. G. Clark, Paisley, R.R. 2	O. A. C. 72	16	15	7	18	21½	77½	
R. Perdue, Eden Grove	Silver Mine	15	15	8	17	21½	74½	⅔
A. Garland, Cargill	Gold Medal	14	15	8	17	20	72⅔	
TEESWATER AGR. SOCIETY.								
Judge—J. W. Patton, Rocklyn, R.R. 2.								
A. B. & W. McKague, Teeswater	O. A. C. 72	18½	24	8½	20	23	94	
D. McDonald, do	do	18¼	24	9	20	22½	93¾	15
J. S. Armstrong, Formosa	do	18½	25	8	20	22	93½	
T. A. Goodfellow, Teeswater	do	17½	24	9	20	22½	93	
J. D. Little, do Box 354	do	18¼	23	8	20	22½	91¾	
Andrew McKague, do	Bumper King	17	24	8	17	23½	89½	
Wm. G. Keith, do	O. A. C. 72	18	20	8	20	23	89	
Robt. Keith, do	do	16½	21	8	21	22	88½	
S. E. A. Stobo, do	do	17	23	8	18	22	88	
Jos. McKague, do	Bumper King	17½	20	9	18½	23	88	14,1
T. B. Aitken, do	O. A. C. 72	18	21	8	18	22½	87½	14,13
C. J. Thompson, do		17	21	8	18	22½	86½	14
Thos. Moffat, do	O. A. C. 72	16½	22	8	18	21	85½	12
WIARTON AGR. SOCIETY.								
Judge—Arch. Greer, Mansfield, R.R. 1.								
E. J. Loney, Oxenden	Banner	18½	22	9	18	23	90½	1
Wm. Lembke, Wiarton, R.R. 2	O. A. C. 72	17½	22	8	17	22½	87	1
D. W. Porter, do R.R. 2	Granary Filler	17½	12	7	18	21	75½	1,13
A. Lembke, do R.R. 2	O. A. C. 72	14½	14	8	18	20½	75	
Bert Beacock, do R.R. 2	do	16	12	7	18	20	73	1,15
G. H. Loney, Oxenden	do	18½	10	8	15	20	71½	12,1
B. Porter, Wiarton	do	15	10	8	18	19½	70½	1

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
CARLETON.		(20)	(25)	(10)	(20)	(25)	(100)	
CARP AGR. SOCIETY.								
Judge—G. W. Davidson, Kemptville.								
H. L. Black, Stittsville	O. A. C. 72	18½	22	9	18½	23½	91½	15
F. S. Caldwell, Carp	Banner	18	23	8½	19	22½	91	4
E. H. Graham, do	O. A. C. 72	18	22	9	18½	23	90½	4,10
W. G. Rivington, do	Banner	18	23	9	18	22	90	4,7,10
J. Gourlay, do	Garton's Abundance	18	23	7	19	22½	89½	4,17
H. K. Hodgins, do	20th Century	17½	23	8	17	22	87½	4
S. J. Scissons, do	do	16½	18	8	18	22½	83	10,15
G. Rivington & Son, do	Banner	14	20	9	18	20	81	
F. G. Humphries, do	Great Dane	14½	16	7	16	21	74½	2,4
FITZROY AGR. SOCIETY								
Judge—G. W. Davidson, Kemptville, R.R. 2.								
E. H. Miller, Galetta	Reg. Banner	18½	22	9	19	23	91½	4
F. R. Gourlay, Kinburn	do	18	24	8	19	22	91	4,15
J. E. Armstrong, do	do	17	22	9	19	23	90	2
Alex. Tait, Galetta	do	17	23	9	18	22	89	4
E. O. Wilson, Kinburn	O. A. C. 72	17	21	8½	19	22½	88	2
R. J. Story, Galetta	Banner	16½	22	9	18	22	87½	4,8
R. H. Smith, do	O. A. C. 72	17	22	8	18	22	87	
W. T. Smith, do	Banner	17	20	8	19	22½	86½	2,10,15
J. A. Anderson, Kinburn	do	17	22	8	18	21	86	4,2,8
A. J. Halpenny, Galetta	do	16½	18	9½	19	22	85	4,10,8
R. G. Gillan, Pakenham	do	16½	19	8½	17	23	84	4,13
P. M. Herrick, Galetta	do	15½	20	8	17	22	82½	4,10
O. Laughlin, Kinburn	do	16	19	8	16½	21	80½	1,4,2,7
W. Allison, Galetta	do	14½	20	7½	18	19½	79½	4,8
M. Muldoon, do	20th Century	15	15	6	17	20	73	4,5,2
METCALFE AGR. SOCIETY								
Judge—J. A. McLennan, Lancaster.								
R. & J. Woods, Metcalfe	Reg. American Banner	15	25	9	19	21	89	
Alex. Dow, do	O. A. C. 72	20	12	9	18	22½	81½	2
Ben Acres, Vernon	Banner	20	10	9½	19	22	80½	2,15,4
H. J. Craig, Metcalfe	Am. Banner	16½	13	8	18	21½	77	2,15,7
G. A. Latimer, do	do	16½	10	7	20	20½	74	2
P. Anderson, do		17½	10	8	19	21	73½	2,15,5
Geo. Acres, Vernon	Banner	15	17	7	10	21	70	15,2

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
DUFFERIN.		(20)	(25)	(10)	(20)	(25)	(100)	
DUFFERIN AGR. SOCIETY.								
Judge—R. H. Harding, Thorndale.								
M. McCormick, Amaranth Stat'n	Banner	15	24	8	18½	22	87½	
S. C. W. Hughson, Orangeville.	Early Cluster	18	22	8	17	19½	84½	
J. J. Leighton, do R.R.	Banner	18	20	7	16	22½	83½	
Jos. H. Jackson do R.R. 1	do	17½	18	7	18	21½	82	
Wm. C. Watson, do	O. A. C. 72	16	20	8	15	22½	81½	
Jas. Johnston, do	do	18	15	7	18	21½	79½	
Jos. Carney, Amaranth Station	Banner	15	22	8	14	20	79	
W. H. Hunter, Orangeville, R.R. 2	Early Bonanza	16½	14½	7	17	22½	77½	
P. B. Norris, do R.R. 2	Banner	13½	20	7	17	19½	77	
W. H. Gillespie, do R.R. 3	Abundance	18	12½	8	17	21	76½	
W. H. Brown, do R.R. 3	O. A. C. 72	18½	10	7	17	22½	75	
F. Leader, do R.R. 1	Banner	14	17	5	15	21½	72½	
J. Hoare, Amaranth Station	do	15½	10	7	17	22½	72	
Benj. Cook, Orangeville	O. A. C. 72	15½	12	4	17	22½	71	
N. Black, do R.R. 2	Banner	17½	10	8	12½	22½	70½	
DUFFERIN CENTRAL AGR. SOCIETY.								
Judge—Walter Baldock, Malton, R.R. 2.								
Arch. Greer, Mansfield, R.R. 1	Imp. Banner	18½	22	9	19	23½	92	
Wm. J. Davidson, Shelburne, R.R. 4	Early Daubeny	18	22	9	19	23	91	
R. J. Hall, Shelburne	Lincoln	18	22	9	19	22	90	
Robt. Mortimer, Honeywood	Marguerite	18	21	9	19	22	89	
J. S. Richardson, Shelburne, R.R.1	White Wave	18	21	9	19	21	88	
G. E. Foster, Honeywood, R.R.1	O. A. C. 72	17	20	9	19	22	87	15
W. J. Hamilton, Shelburne, R.R.5	Imp. Banner	17	20	9	19	21	86	
J. O. Marshall, Camilla, R.R. 1	Sterling	17	19	9	19	21	85	
Rice Hill, Shelburne, R.R. 4	Early Daubeny	17	17	9	19	21	83	1
Jas. H. McKee, do R.R. 4	O. A. C. 72	16	17	9	19	21	82	1
EAST LUTHER AGR. SOCIETY.								
Judge—W. Hickson, Bobcaygeon.								
Wm. Willmott, Gd. Valley, R.R. 3	O. A. C. 72	17	24	8	19	23	91	15
H. Berry & Sons, do R.R. 3	Reg. Banner	17½	15	8	20	23	83½	2
W. E. Turner, do R.R. 3	O. A. C. No. 3	18	15	9	17	22	81	2
N. Eastwood, do R.R. 3	O. A. C. 72	19½	10	7	19	23	78½	2
A. Richardson, do R.R. 1	do	19	8	7	18	23½	75½	1,2

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

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DUNDAS.		(20)	(25)	(10)	(20)	(25)	(100)	
Mountain Agr. Society.								
Judge—J. D. McLennan, Lancaster.								
S. D. Thorpe, S. Mountain	Banner	19	20	9	18	23½	89½	
Jas. Higginson, Inkerman	White Wave	17	24	6	19	21	87	
J. K. Clarke, S. Mountain, R.R. 2	O. A. C. 72	17	22	7	19	21	86	
A. Collison, S. Mountain	White Wave	16	20	8	16	21	81	
Wm. Higginson, Inkerman	do	15	18	8	18	21	80	2
Wm. T. Timmins, do	do	16	20	8	16	19	79	2,15
Jno. Baldwin, Winchester, R.R. 3	O. A. C. 72	17	20	5	18	18½	78½	2
Robt. Mulholland, S. Mountain	do	16	23	6	19	14	78	
Geo. Timmins, Inkerman	White Wave	14	17	7	18	21	77	2
Herb. Waller, Winchester, R.R. 3	O. A. C. 72	12	20	5	18	21½	76½	
R. K. Graham, S. Mountain	O. A. C.	15	23	5	19	14	76	
Melon Bros., do	O. A. C. 72	15	10	9	15	21	70	2
DURHAM.								
Cartwright Agr. Society								
Judge—F. W. Rilance, Beaverton.								
N. H. Marlow, Burketon	O. A. C. 72	17	23	8	18	22	88	
W. Marlow, do	do	17	22	8	18	22½	87½	15
J. M. English, do	Mammoth Cluster	16	22	8	18	21	85	
L. E. Mountjoy, do Jct.	Irish	15	24	8	18	21½	84½	§
S. H. Malcolm, Nestleton	O. A. C. 72	17	20	9	16	22	84	1,2
Sam'l McLaughlin, do	Mammoth Cluster	15	23	8	18	19	83	
Fred. Taylor, do	Prince Royal	16½	21	8	18	21	82½	§10
Jno. Mountjoy, do	O. A. C. 72	15	22	8	17	20	82	
R. Nesbitt, do	Prince Royal	16	20	8	18	21	81§	1
Roy Taylor, do	do do	15	20	8	19	21	81§	15,10
H. Beacock, do	Newmarket	14	23	8	17	20	80§	
Geo. Nesbitt, do	Prince Royal	15	22	7	16	21	79§	
F. F. Willan, Blackstock	Industrial	16	12	8	16	20	70§	
Clarke Tp. Agr. Society.								
Judge—Thos. Hall, Brooklin.								
C. L. Powers, Orono	Banner	18	24	8½	19	22½	92	15
J. T. Chapman, do	O. A. C. 72	16½	22	9½	20	23½	91½	
C. A. Chapman, do	do	17	23½	9	20	20½	90	
Colin, Colville, do	do	17½	21	9	19½	22½	89½	2,1
Jno. Allin & Son, do	White Wave	17½	24	9	20	20½	89§	
F. W. L. Tamblyn, do	Granary Filler	17½	20	9	19	21½	87	1
A. J. Staples, do	O. A. C. 72	16	24	8	18	19½	85½	
R. Luxon, do	Granary Filler	16	19	9	18	22	84	10
F. W. Bowen, Newcastle	do	17½	14	9½	19	23½	83½	1,10,2
F. W. Richard, do	Banner	17½	15	9	18	22	81½	
Gordon Powers, Orono	O. A. C. 72	16	14	9	20	21	80	15,10,1

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

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DURHAM.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
MILLBROOK AGR. SOCIETY.								
Judge—F. W. Rilance, Beaverton.								
W. R. N. Sharpe, Ida, R.R. 1..	Banner..........	17½	22	9	19	21½	89	
T. A. Kelly, Fraserville........	O. A. C. 72......	16	23	9	18	21	87	
Robt. McCamus, Ida, R.R. 1....	Banner..........	15½	21	8	19	21	84½	15,1
D. A. Henry, Millbrook, R.R. 7..	do	14	22	8	17	21	82	15
L. H. Winslow, Ida, R.R. 1.....	do	14½	23	7	17	20	81½	
H. Cathcart, do do	do	15½	15	9	19	20½	79	2,1
H. Hubbard, Millbrook, R.R. 3..	do	16½	15	8	18	21	78½	2
Wm. Wills, Cavan, R.R. 1......	do	16	11	9	18	21	75	1,2
L. Fallis, Millbrook...........	do	15	15	7	17	22	76	2
John Earl, Ida, R.R. 1.........	do	16	12	8	17	21	74	1,2
A. J. Henderson, Millbrook, R.R. 3	Giant	15	12	5	17	21	70	15,2
WEST-DURHAM AGR. SOCIETY.								
Judge—Thos. Hall, Brooklin.								
A. W. Annis, Tyrone	O. A. C. 72......	17	24	9	19	22½	91½	15
J. F. Osborne, Newcastle	Granary Filler...	17½	22	9	19	23½	91	15,10
J. Baker, Hampton, R.R. 1	O. A. C. 72......	17	23	8	19	23	90	2
R. E. Osborne, Bowmanville, R.R. 2	Banner..........	16½	22	8	19½	23	89	1
A. L. Pascoe, Hampton, R.R. 1..	O. A. C. 72......	16½	24	9	19	20	88½	
Thos. Jackson, Bowmanville, R.R. 4	Banner..........	17	22½	8	17	22	86½	2,15
Jas. Leask & Son, Taunton.....	O. A. C. 72......	16½	21	9	19	20½	86	2
L. T. Pascoe, Hampton, R.R. 1	do	14	24	8	19	20½	85½	2,14
Wm. E. Jewell, Bowmanville R.R. 4	White Wave.....	16	19	9	18	21½	83½	2,10
Geo. Lane, Bowmanville, R.R. 4	do	17½	16	8	18	21½	81	2,4
S. E. Werry, Hampton, R.R. 1 ..	O. A. C. 72......	16	10	9	19	19	73	1,4
ELGIN.								
ALDBOROUGH AGR. SOCIETY.								
Judge—Robt. Berry, St. Mary's.								
D. F. McLean, Rodney	O. A. C. 72......	18	22	9	19	23½	91½	
W. W. Campbell & Son, Wardsville	Banner..........	17½	22½	9½	17	23½	90	15
J. A. King & Son, Wardsville....	O. A. C. 72......	15½	23	9	19½	22½	89½	
D. Purcell & Son, do	do	17	22	9	18	22½	88½	14
Jas. Kelly, Sr., Rodney	do	15	22½	7½	18	21	84	15,14
E. J. Purcell, Wardsville	Prince Royal....	16	23	8	16½	22	83½	8
Jas. C. Downie, Rodney	O. A. C. 72......	15½	21	5	19	22½	83	15
G. Kelly, do	do	16½	21	5	18½	21½	82½	15
M. W. Purcell, do	do	16	21	7½	17	20½	82	15

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OATS.

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ELGIN.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
ALDBOROUGH AGR. SOCIETY—*Con.*								
W. M. Havens, Rodney	O. A. C. 72	15½	20½	7	17	21	81	15
J. J. Johnston, Wardsville	do	15½	21½	7	16½	20	80½	
R. A. Kerr, Rodney	do	14½	20	6½	17½	21½	80	15,14
D. Shaw, do	do	15	20½	6	15½	21	78	15
Geo. Blains, Wardsville	do	15½	17	5½	18	21½	77½	5,15
W. A. Kelly, Rodney	do	14	18	6½	17	21½	77	15,14
A. MacColl, do	do	15	17	5	18	20	75	15
Whitney Kelly, do	Sensation	15½	18	7½	14	21	74§	15,14
A. J. Leitch, Wardsville	Am. Wonder	14	18	8	15½	19	72½	§
E. Huffman, Rodney	O. A. C. 72	14½	19	5	14½	18	71	15
STRAFFORDVILLE AGR. SOCIETY.								
Judge—Robt. Berry, St. Mary's.								
Wm. Abell, Aylmer, R.R. 1	O. A. C. 72	18	22½	5	18	22½	86	
Ed. Knott, do do	do	18	21	6	17½	22½	85	14,15
E. Sitts, do do	do	17	20	7	18	22½	84½	15
Leslie High, Straffordville	do	16½	21	6½	18	21½	83½	14
W. F. Pound, Aylmer, R.R. 1	Banner	15½	20	7½	16	21½	80½	15
Elgin Hatch, Eden, R.R. 1	O. A. C. 72	14	21	5	16	19½	75½	15
S. M. Dennis, Corinth, R.R. 1	20th Century	13½	18½	6	16½	21	73½	§
N. H. McConkey, Straffordville	O. A. C. 72	15½	18	7½	10	20½	71½	15
H. Yeandle, do	Siberian	14½	17½	4½	17	19	70½	§
Jno. Lawlor, Corinth	O. A. C. 72	16	17	7	10	20	70	15
WEST ELGIN AGR. SOCIETY.								
Judge—W. P. Hinman, Toronto.								
Geo. Cumming, Wallacetown	O. A. C. 72	19¾	24	9¾	19¾	23¼	96½	
A. A. Gow, do	do	19½	24	9¾	19¾	23	96	
Samuel Pearce, Iona	do	19¾	23½	9¾	19½	22¾	95¼	
S. L. Pearce, Wallacetown	do	19¾	22	10	20	23¼	95	15
Jno. McPherson, Campbellton	do	19¼	23	10	20	22½	94¾	
E. H. Pearce, Wallacetown	do	19¾	22½	9½	19¾	23	94½	15
J. E. Pearce, do	do	19½	23	9½	19¼	23	94¼	15
Jonas Page, do	do	19¼	23	9¾	19½	22	93½	
A. D. McKillop, do	do	19	21	9½	20	22½	92	15
E. V. Docker, do	do	19½	20	9½	20	23	92	15
A. D. Clapp, Dutton	Elmhurst	19½	22	9½	20	23	92§	
P. B. S. McPherson, Campbellton	O. A. C. 72	19¾	20	10	20	22	91¾	15
McGeachy Bros., Dutton	do	20	22	8	19	22¾	91¾	
Jas. Page, Wallacetown	do	18¾	21½	10	20	21¼	91½	10,15
A. D. McKellar, Dutton	Siberian	18¾	22¾	10	20	22	91½	§
W. S. Pearce, Wallacetown	Banner	19	20	10	20	22	91	10
N. Crane, do	Cluster	19	20	10	19	23	91	15
Thos. Garbutt, do	O. A. C. 72	19½	21	9	18½	22¾	90¾	10,15
D. Carroll, Dutton	do	19	20	9½	20	22	90½	
D. C. Turner, do	do	18½	22	9¾	17	23	90¼	10
C. C. Small, Wallacetown	do	19	22	8½	20	20¾	90¼	
D. H. McCallum, Dutton	Irish Victor	19½	23	9	19	21½	90§	

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OATS.

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ELGIN.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
WEST ELGIN AGR. SOCIETY—*Con.*								
Jas. Lunn, Fingal	Granary Filler	19	22	8½	19½	20¾	89¾	
Arch. Lunn, Wallacetown	do	18	21	9	19½	22	89½	15
H. Garbutt, do	O. A. C. 72	18¾	20	9½	19	22¼	89½	
Harold Green, do	Banner	18¼	21	9½	19½	21	89¼	10
H. F. Hales, Dutton	O. A. C. 72	19½	20	8	19	22½	89	
Jno. Lynch, Wallacetown	Banner	20	20	9¾	16	23	88¾	2,12
E. H. Backus, do	Mammoth Cluster	19	20	10	16	22	87	10,15
ESSEX.								
AMHERSTBURG, ANDERDON AND MALDEN AGR. SOCIETY.								
Judge—Robt. Berry, St. Mary's.								
Thos. Deslippe, Amherstburg	O. A. C. 72	19½	24½	7	20	23	94	
M. Deneau, N. Malden	do	18½	24	8	20	23	93½	
Ed. A. Deneau, do	do	19	24	8	19	23	93	
E. Langlois, Amherstburg	do	19	23½	8½	18	23½	92½	
Ed. Deslippe, N. Malden	do	18½	22½	7½	20	23	91½	15
F. Pigeon, do	do	18	23	7½	20	22½	91	
Jas. Martin, Amherstburg	do	17	23	8½	19	22½	90	
R. Langlois, do	do	18	21	7	18	23	87	
F. Pettypiece, Auld	do	15½	23	5	19½	21½	84½	
W. G. Sellars, Amherstburg	do	15	22	7½	18½	21	84	15
H. Vollans, Auld	Mortgage Lifter.	15½	23	8	16	19½	82	15
W. C. Anderson, Amherstburg	O. A. C. 72	16½	22	9½	....	22	70	15
FRONTENAC.								
KINGSTON IND. AGR. SOCIETY.								
Judge—W. E. Gray, Elgin, R.R. 3.								
C. A. Kincaid, Kingston, R.R. 1	O. A. C. 72	18½	24	9	19½	23	94	5,15
M. Fowler, do do	do	17½	23½	9	19½	23	92½	5,10,4
Jas. Henderson & Son, Portsmouth	do	18	24	9	19	22	92	12,15,10
W. Shillington, Westbrook	do	18	22	9	19	23	91	10
Jas. B. Baxter, Kingston, R.R. 1	do	18	22	9	19	22½	90½	10
Thos. Doyle, do do	Banner	16	22	9½	19½	22	89	5
J. D. Morris, Portsmouth	O. A. C. 72	17	22	9	19	21½	88½	4,12
J. S. Sibbitt, Kingston, R.R. 1	do	16½	23½	9	19	20	88	4,5
Cooke Bros., Cataraqui	do	18	20	9½	18	22	87½	5
J. L. F. Sproule, Westbrook	do	17½	24	7	18	20	86½	
Jas. Mulvenia, Kingston, R.R. 1	Mammoth Cluster	18	22	8	18	20	86	5,10
J. S. Yeomans, Collins Bay	O. A. C. 72	15½	23	6½	19	21	85	15
J. S. Knight, Cataraqui	do	16	21	8½	18	20½	84	5
Jos. McGrath, Kingston, R.R. 1	do	15½	21	7	20	20	83½	5,4
G. L. Sibbitt, do do	do	16	22	7	19	19	83	5,10
Ed. Braddon, do do	Geo. Washington	15½	22	9	19	19	82½	84,10
Arthur Day, Portsmouth	O. A. C. 72	15	21	8	16½	20	80½	12,5,15,10
E. S. Baxter, Kingston, R.R. 1	do	16½	13	9	19½	21	79	5,4,2
Wm. Gordon, Kingston Mills	do	13	23	8	19	15	78	5
W. J. Hunter, do	Banner	15	9	8½	19½	21	73	2,5

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
FRONTENAC.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
WOLFE ISLAND AGR. SOCIETY.								
Judge—W. E. Gray, Elgin, R.R. 3.								
C. Laughlin, Wolfe Island, R.R. 4	O. A. C. 72.......	19	24½	9	19½	23½	95½	15
Wm. Allum, do do	do	18	23½	8½	19½	23½	93	
David Watts, do do	Banner..........	17½	23	9½	18½	22½	91	10
Jas. Grant, do R.R. 2	do	17	23½	9	19	22	90½	4,10
M. Wiggins, do R.R. 2	do	16½	23	9	19	22½	90	13,4
H. McCready, do R.R. 2	do	17	22	9	19	21	88	4,10
S. J. Wordman, do R.R. 4	do	16½	21½	9	19	21½	87½	10.15
Henry Hall, do	do	17	23	9	17	21	87	10.4
A. Payne, do R.R. 4	do	16½	22	8½	19	20	86	4,10
Jas. Hulton, do R.R. 4	do	16½	21	8	18	22	85½	10.4,15
Jno. Keys, do R.R. 2	do	16	22	7	19	21	85	4
J. S. Armstrong, do R.R. 4	do	16	21½	7½	16	20	81	10,15.4
R. Kesler, do R R. 1	Kitner..........	15½	21	8½	19	18½	80½	84,15,10
Wm. Keys, do R.R. 2	O. A. C 72.......	17	14½	8½	19	19½	78½	4,2
GLENGARRY.								
KENYON AGR. SOCIETY.								
Judge—S. G. Gourlay, Ottawa.								
W. T. Arkinstall, Dunvegan. R.R. 2	Banner..........	19	24	9	19	23½	94½	
Wm. F. Campbell, Maxville, R.R.	do	18	23½	9	18½	22½	91½	
F. McLeod, Dunvegan	20th Century....	17	24	8½	18½	22	90	
N. Campbell, Moose Creek, R.R.2	Banner.........	18	20	9	19	23	89	
Chas. Blaney, Maxville	do	16½	21	8½	18	23	87	
D. A. McGregor, Moose Creek R.R. 2	do	18½	22	8	15	22½	86	
Jas. Vallance, Maxville, R.R. 2	do	17½	21	8½	17½	20½	85	
Thos. Blaney, do	do	17	21	8½	17	21	84½	
Jas. Villneuve, do	do	17	20	8½	16½	21	83	
S. J. McEwen, do R.R. 2	O. A. C. 72.......	16	23	7½	16½	19	82	
A. A. McLeod, Dunvegan, R.R. 1	Banner..........	17	19	7	17	21	81	
A. J. McLeod, do	do	16	20	8	17	19	80	
Arch. McRae, do	do	16½	18	8	17	20	79½	
ST. LAWRENCE VALLEY. AGR. SOCIETY.								
Judge—S. G. Gourlay, Ottawa.								
J. J. Dingwall, Williamstown ..	Banner..........	18	23	9	18½	23	91½	
Thos. Munro, Lancaster	do	18	23	9	19	22	91	
J. P. Snider, Bainsville	Early Angus.....	17	22	9	18	22	88	
Wm. Condie, do	O. A. C. 72.......	17	18	8	19	23	85	2
J. D. MacLennan, Lancaster ...	Great Dane......	17½	18	9	18	22	84½	
J. W. Clark, do	Banner..........	16	20	8½	19	20	83½	
J. H. Goodfellow, do	do	18	19	8	15½	22½	83	

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OATS.

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GLENGARRY.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
ST. LAWRENCE VALLEY AGR. SOCIETY—*Continued.*								
P. S. Snider, Bainsville	Early Angus....	15½	18	8	19	22	82½	
F. Robertson, Williamstown ..	O. A. C. 72.......	17	16	8	18	23	82	
Wm. Wightman, Lancaster	Banner..........	16	19	9	17	20	81	
A. A. McLennan, do	O. A. C. 72.......	16½	16	8½	19	20½	80½	
Wm. Mitchell, Bainsville	Siberian.........	16	20	8	18	18	80	
J. McNaughton, Williamstown.	Banner..........	16	17	9	16	21½	79½	
Alex. McDonald, Summerstown.	O. A. C. 72......	15½	16	8	17	20½	77	5,2
GREY.								
EAST GREY AGR. SOCIETY.								
Judge—Geo. E. Foster, Honeywood.								
Robt. Swanton, Flesherton	O. A. C. 72.......	15	24	9	19½	20½	88	11
Wm. Boyd, do	do	17½	24	8½	14	22½	86½	5
Thos. J. Stinson, Proton, R.R. 3	Banner..........	18½	22	5	14	21½	81	2
L. A. Fisher, Flesherton	O. A. C. 72.......	16	23	5	15½	20½	80	15,14
R. W. Chard, Proton, R.R. 3....	do	14½	18	9	16	20½	78	1
Wm. Patton, Priceville, R.R. 3..	do	14½	18	7½	17	19½	76½	1,2.15
D. McTavish, Flesherton	do	17½	18	5	14	20½	75	1
Wm. Stewart, do	Derby..........	19	10	6	18	23½	74½	81
HOLLAND AGR. SOCIETY.								
Judge—Jno. McDiarmid, Lucknow, R.R. 6.								
Jno. McKenzie, Chatsworth, R.R. 3	O. A. C. 72.......	19	23	8½	18	24	92½	
Geo. Milson, Chatsworth, R.R. 3	do	17½	23	9	17½	22½	89½	15
M. Cameron, Owen Sound, R.R. 4	do	17½	21½	8	19	22½	88½	1
E. P. Hammill, Chatsworth R.R. 1	do	17	22	9	18	22	88	1,15
J. McDonald, Chatsworth, R.R. 3	do	17	21½	8	17½	22½	86½	15
H. Farrow, do do	do	16	22	8	18	22	86	15
Chas. Finn, do do	do	17	21½	8	17	22	85½	15
A. Kemp, do R.R. 4	do	16	20	7	18	21	82	1,15,2
R. S. Lee, do do	do	16½	18	8	17	21½	81	1,15
Thos. McComb, do	do	16	19	7½	17	21	80½	1,15,11
Jas. Duff, do R.R. 3	do	14	20	7½	16	20	77½	2,15
Wm. Carson, do do	do	17	18	7	16	20	78	1,15
KEPPEL AND SARAWAK AGR. SOCIETY.								
Judge—R. J. Hall, Shelburne. R.R. 2.								
Geo. McKenzie, Kemble	Lincoln..........	15	25	8	16	20	84	
D. Davidson, do	O. A. C. 72.......	15	25	7	14	20	81	
H. Hurlbut, do R.R. 2	Derby...........	14	19½	8	19	20	80½	1
R. Ward, do	O. A. C. 72.......	14	22	8	15	18½	77½	2
M. Bedell, do	....	14	22	7	16	18	77	15
Jno. McGregor, do	O. A. C. 72.......	17	15	8	15	19	74	1
E. Johnstone, do	....	13	20	6	14	19	72	2

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OATS.

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GREY.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
KILSYTH AGR. SOCIETY.								
Judge—R. J. Hall, Shelburne, R.R. 2.								
E. H. Coulter, Owen Sound, R.R.3	Banner..........	16	25	7	20	20½	88½	
B. Porteous, do do	do	17	25	7	20	19	88	
A. Forgrave, do R.R. 5	do	16	25	7	17	22	87	
A. S. Donald, Tara, R.R. 5	do	16	25	8	16	21	86	
A. Fleming, do do	do	15	24	8	19	19	85	
V. Barber, Owen Sound, R.R. 4	do	17	24	7	17	19	84	
H. Breen, Tara, R.R. 5	do	14	24	7	18	19	82	
E. Fleming, do do	O. A. C. 72.......	13	24	5	20	18	80	
D. T. Waddell, Kilsyth, R.R. 2	Banner..........	14	23	7	15	19	78	
A. Thompson, Owen Sound, R.R.4	O. A. C. 72......	14	20	7	16	18½	75½	12
G. A. Sargeant, do	Banner..........	13	20	7	15	20	75	10,12
Geo. Anderson, do R.R. 3	O. A. C. 72......	13	21½	4	15	21	74½	
W. Garvie, Tara, R.R. 4	Banner..........	14	17	7	16	19½	73½	1,5
Jas. Greig & Son, Shallow Lake R.R. 2	White Wave.....	15	16	7	15	20	73	1
O. R. Smith, Owen Sound, R.R. 4	Banner..........	13	20	6	16	17	72	12
MARKDALE AGR. SOCIETY.								
Judge—Alex. McKague, Teeswater.								
Jas. Findlay, Markdale, R.R. 5	O. A. C. 72......	18	23½	9	19½	23½	93½	1
Wm. McLoughry, do R.R. 4	do	17	23½	9	19	23	91½	15
Earl Davis, do do	do	15½	21	8½	18	22	85	15
F. Boland, do do	Banner..........	18½	15	9	18½	23	84	1
McLoughry Bros., do R.R. 5	O. A. C. 72......	16	15	8	18	21	78	15.2
Jos. Buchanan, Flesherton. R.R.2	do	15½	15	8	16	20½	75	1
Johnston, Bros., do do	Mammoth Cluster.	16½	10	8	17	22½	74	1
T. S. Mercer, Markdale, R.R. 4	O. A. C. 72......	16	15	7	14	21	73	1
D. Foster, do do	do	16	12	8	15	21	72	
MEAFORD AND ST. VINCENT AGR. SOCIETY.								
Judge—Andrew Schmidt, Mildmay.								
Wm. Pollock, Meaford, R.R. 1	Yel. Russian.....	19½	12	7	19½	23	81	1
H. Gilmore, do do	Banner..........	16	21	7	15	21½	80½	15
R. A. Loucks, Rocklyn, R.R. 2	do	17½	18	8	15	21	79½	15,1
Jas. Robertson, do do	Scottish Hero ...	18½	15	6	18	22½	78⅜	15,1
W. A. Johnstone, Meaford	O. A. C. 72.......	18½	15	5	16	21½	76	1,2
Jno. F. Eaton, do R.R. 1	Banner..........	17½	11	8	16	23	75½	2,1
C. A. Shields, do do	do	16½	12	7	16	21	72½	1,2
E. Martin, do	Scottish Hero....	18	7	7	18	22	70⅜	1,2,15

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GREY.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
OSPREY AGR. SOCIETY.								
Judge—Geo. E. Foster, Honeywood.								
E. Buckingham, Maxwell	Banner	18	23	8½	19	23½	92	1
J. A. Kernahan, do	O. A. C. 72	19	20	8	18	24	89	1
Samuel Hawton, Feversham	do	18½	18	6	18	23	83½	1
W. H. Hall, Singhampton, R.R. 1	Lincoln	18½	15	9½	17	22½	80½	§1,11,4
E. Hawton, Feversham	O. A. C. 72	17	12	9	18½	21½	78	11
L. W. Kerton, Maxwell, R.R. 1	Abundance	17	17	8½	16	19½	77	1,2
A. Morrison, Maxwell	$1,000	18	15	9	13	20	73§	1,4
R. J. Alisten, Feversham	Derby	15	15	8	16	20½	72½	§1
Geo. McDonald, McIntyre	Banner	16	15	6	15	20	72	1,2
Jos. Allison, Maxwell	O. A. C. 72	16	15	5	15	19	70	1
PROTON AGR. SOCIETY.								
Judge—Geo. B. Little, Agincourt.								
W. H. Russell, Dundalk, R.R. 4	Yel. Russian	18	22	8½	19	21½	89	15
J. J. Cronin, Cedarville	do	17½	22	8	18½	21	87	
L. McQuarrie, Dundalk, R.R. 2	$1,000	16½	24	8½	18	19½	86½	14
J. W. Hannah, do do	New Industrial	16	23	8	16½	19	82½	
R. J. Cronin & Son, Riverview, R. 1	Yel. Russian	17½	20	7½	17	20	82	
Jas. H. Nicholls, Corbetton, R.R.4	Sensation	15½	20	7	18	21	81½	2
R. R. Kimell & Sons, Hopeville, R.R. 1		15½	19	8½	19	18½	80½	2
Jno. McQuarrie, Dundalk, R.R. 2	Northland	14	22	7	18	17½	78½	14
E. Ebel, Corbetton	Reg. Bonanza	13½	21	8	17	19	78½	4,2
T. Elliott, do	Ligowa	16	18	7	16½	20½	78	
R. J. Cornett, Dundalk, R.R. 3	Sensation	15½	18	7	16½	19½	76½	2
Geo. Bell, Corbetton, R.R. 3	Banner	14½	19	8	16½	18½	76½	2
M. Lonsway, do	Sensation	13½	18	8	16½	19½	75½	2
Jas. Elliott, do	Banner	17	16	7	16	19	75	2
Thos. Walton, Dundalk, R.R. 1	O. A. C. 72	13½	16	8	18	18½	74	2
R. Lonsway, Corbetton	Sensation	14½	15	8	16½	20	74	1,2
R. N. Fowler & Son, Dundalk, R.R. 2	Yel. Russian	14½	16	8½	16½	18	73½	2
A. Clarke & Sons, Dundalk, R.R.2	$1,000	15½	16	8	15	19	73½	2
Jos. Coulter, Dundalk, R.R. 1	Sensation	13½	18	6½	17	17	72	2
ROCKLYN AGR. SOCIETY.								
Judge—Andrew Schmidt, Mildmay.								
John King, Meaford, R.R. 4	Banner	18¾	13	9	18	23½	82¼	1,15
W. H. Sewell, Blantyre	O. A. C. 72	18	11	9	18	22½	78½	15,14
J. A. Berry, Meaford, R.R. 4	Banner	18¾	9	9½	18	22½	77¾	1,15
M. Abercrombie, do do	Australian	19	12	8	17½	23	77½	§1,2,14
Thos. Langtre, do do	Banner	18¼	8	9	18½	22½	76¼	1

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GREY.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
ROCKLYN AGR. SOCIETY.—*Con.*								
R. J. Dunlop, Meaford, R.R. 4	Scottish Hero...	18¼	9½	9	18½	22½	75¾	§1,2,10,14
C. F. Fisher, do do	Banner..........	15½	12	8½	18	20½	74½	1,15,2
W. Patton, Rocklyn, R.R. 2	do	18	6	9	18	23	74	1,14,15.10
J. Yeadell, do do	do	16½	12	7½	17	20½	73½	1,14
G. L. Sewell, Meaford, R.R. 2..	do	17½	6	8½	18	23	73	1,2
SOUTH GREY AGR. SOCIETY.								
Judge—Alex. McKague, Teeswater.								
J. A. Dixon, Varney, R.R. 1. ..	Banner..........	19½	22	9	19	23½	93	1
Jas. W. Mather, Hanover, R.R. 1	O. A. C. 72.......	16	24	9	19	21	89	
Thos. H. Binnie, Priceville, R.R. 2	do	18	22	8	17	23	88	
Alex. Grierson, Hanover, R.R. 1	Banner..........	17½	21	8	17	22½	86	14
W. W. Ramage, Varney, R.R. 1..	O. A. C. 72.......	18	20	7½	17	22½	85	10
D. Edge, Durham	do	17	15	9	19	23	83	2
Jas. B. Park, Hanover, R.R. 1..	Banner..........	16	19	8	17	21	81	2
Jno. Hamilton, Durham, R.R. 4	O. A. C. 72.......	16	18	7	16	21½	78½	2
H. G. Brigham, Allan Park	do	16	21	5	15	21	78	14
R. T. Edwards, Markdale, R.R. 1	Mammoth Cluster	18	10	8½	17	22	75½	1,2
John McGirr, Durham, R.R. 4..	O. A. C. 72.......	14	18	7	16	19	74	2,15
Alex. Herd, Allan Park	Banner..........	13½	20	5	14	19	71½	
WALTER'S FALLS AGR. SOCIETY.								
Judge—Jno. McDiarmid, Lucknow, R.R. 6.								
Geo. I. Reid, Goring	Banner..........	17	23½	8	18	23	89½	
G. W. Saunders, Walter's Falls.	do	17½	23	8½	18	22	89	15
R. A. Hanna, Bognor	do	18	23	7½	17½	22½	88½	15
John Thom, Walter's Falls	....	17½	19	9	18	22	85½	1,2,15
E. Walter, Goring	Australian.......	16½	22	8½	18½	21½	85§	15
E. W. Quinton, Walter's Falls..	Banner..........	17	21	8	17½	21	84½	15
Jas. H. Caswell, Bognor	do	15½	19	7½	19	22	83	2
W. T. King, Walter's Falls	do	14½	20	8	18	20	80½	1,15
Robt. Mustard, Chatsworth, R.R. 5	O. A. C. 72.......	15	19	7½	17	20	78½	2,15
R. Williamson, Goring	20th Century....	15½	18	7½	17	21	77§	1,15
Jas. Murray, Markdale, R.R. 3..	Australian.......	15½	16	7	16	20	72½	§1
Jas. Morrison, Chatsworth. R.R.5	Granary Filler..	14	18	7	14	18½	71½	1,15
HALDIMAND.								
HALDIMAND AGR. SOCIETY.								
Judge—S. M. Pearce, Fingal.								
B. Mehlenbacher, Cayuga, R.R. 3	O. A. C. 72......	18½	21	9	17	22	87½	15,10
S. A. Best, do R.R. 4	Mammoth Cluster	17	23	6	19	21½	86½	
Jno. Chrysler, do R.R. 2	O. A. C. 72......	17	24	7	17	19½	84½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
HALDIMAND.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
HALDIMAND AGR. SOCIETY.—*Con.*								
H. Gardner, Cayuga, R.R. 3	Granary Filler..	17½	20	6	17	22	82½	15
Geo. Parsons, do R.R. 2	O. A. C. 72......	16½	22	6	17	20	81½	15
Jno. McConnell, do do	Granary Filler..	18	18	8	16	21	81	15,10
F. Walsh, do R.R. 1	Early Jewel.....	16½	22	7	16	21	80½	§15,14
Thos. Lishman, Sr., do do	Banner..........	16	19	9	17	19	80	15,10
J. Nablo, do R.R. 3	O. A. C. 72......	14½	21	7	17½	19½	79½	15
N. Last, do R.R. 4	Reg. Banner.....	13	22	8	17	18½	78½	15
N. Mehlenbacher, do R.R. 3	Big Four........	14	15½	8	18	19½	73§	1
SOUTHERN BRANCH AGR. SOCIETY								
Judge—S. M. Pearce, Fingal.								
N. Hartwich, Fisherville, R.R. 1	Am. Banner.....	17	21	9	17	23	87	10
S. Culver, Selkirk	O. A. C. 72......	16½	23	6	18	21	84½	
Jno. I. Hartwich, Fisherville, R.R. 2	Banner..........	17	20	8	18	21	84	4
Wm. G. Beabion, Selkirk, R.R. 2	O. A. C. 72......	17	22	6	19	18½	82½	15,14
G. P. Fulson, Fisherville, R.R. 2	Early Yielder...	17½	19	8	18	21½	82§	14,15
Jno. H. Schweyer, do do	do ...	17	21	8	17	18½	79½	§15
D. W. Culver, Selkirk, R.R. 2	Irish...........	15½	18	8	17	22	78½	§15
G. A. Fitzgerald, do do	O. A. C. 72......	17	18	7	16	20	78	4
Jos. N. Foreman, S. Cayuga, R.R. 1	Early Yielder....	15½	22	6	18	18	77½	§14
Thos. H. Peacock, Jarvis, R.R. 3	Bumper King....	15½	17	7	18	19	74½	§15,14
HALTON.								
HALTON AGR. SOCIETY.								
Judge—Jas. McLean Richmond Hill.								
H. R. Frankland, Hornby	O. A. C. 72......	16	24	9	20	22	91	15
E. Harrop, Milton, R.R. 5	do	17	23	8½	19	22	89½	15
E. M. Readhead, do	do	16½	23	7½	17½	23	87½	15
W. N. Scott & Son, do	....	17	23	8	16½	22½	87	10
A. W. Milne, do R.R...	....	16	20	8½	19	22	85½	2
Geo. E. Gastle, do	Banner..........	15½	22	8	18½	20½	84½	
D. F. Ford, do R.R...	....	15	25	6½	14½	20½	81½	
Wm. R. Hume, do	O. A. C. 72......	16	17	8½	17½	21½	80½	2
E. A. McCann, do	do	15	22	6	12	20	75	9,10
Jno. F. Ford, do	....	16½	5	8	19	22	70½	2,10
NELSON AND BURLINGTON AGR. SOCIETY.								
Judge—Jas. McNeil, Maple								
H. M. Pettit, Freeman, R.R. 2	O. A. C. 72.......	17½	22	8½	18½	23½	90	15
L. Kearns, do	do	16½	23	9	18	22	88½	10
A. Hislop, do R.R. 2	do	16	22½	7	17	21½	84	15
G. P. Cole, do R.R. 2	do	16	21	8	18	20½	83½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
HALTON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
NELSON AND BURLINGTON AGR. SOCIETY.—*Con.*								
G. Breckon, Bronte	O. A. C. 72	16	21	7	18	21	83	15
W. Lucas, Freeman, R.R. 2	Sensation	15	20	9	18	20	82	15
M. T. Watson, Tansley	O. A. C. 72	14½	22	7½	18	19	81	
F. E. Spence, Freeman, R.R. 1	do	16	20	7½	17½	19½	80½	15
C. N. Blanshard, V.S., do R.R.2	do	14½	20	8	17	18½	78	
J. H. McCormick, do R.R. 2	do	14	20	8	18	17½	77½	15
Thos. Fothergill, do R.R. 2	Dalmeny	15	19	6	16	20	76	15
R. Heatherington, do R.R. 1	Granary Filler	15	18	6	17	19	75	
J. A. Pettit, do R.R. 1	O. A. C. 72	14½	16	8	17	18½	74	10.15
W. E. Breckon, do R.R. 2	do	13½	18	6½	16½	18½	73	15
Jno. Easton, do R.R. 2	do	12½	22	7	17	14	72½	
J. Heatherington, Campbellville.	Great Dane	15	15	6	16	20	72	15.2
W. Lucas, Freeman, R.R. 2	O. A. C. 72	12	19	7	16	17	71	
O. McKerlie, do R.R. 1	do	15	12	7	17	19	70	15,2
HASTINGS.								
MADOC AGR. SOCIETY.								
Judge—W. J. Barber. Rossmore.								
Wm: Rollins, Madoc, R.R. 3	O. A. C. 72	18½	24	8½	18	22½	91½	15
Henry Kells, do	Banner	17	23½	8	19	20½	88	15,10
Mrs. H. Blakely, Eldorado, R.R.1	O. A. C. 72	17½	22	8½	19	20½	87½	15
H. Rollins, Madoc, R.R. 3	do	16	21	8½	19	20	84½	15.4
Wm. Conlin, Eldorado	Banner	16	20	8	19	20½	83½	10,15
I. Broadworth, Madoc	do	15½	22	7	19	19	72½	15
Jno. Smith, do	do	15½	20	7	19	19½	81	15,10
Thos. Pack, Eldorado	do	15½	19	8½	18	19	80	15,4
H. J. Empey, do	do	15½	21	8	17	18	79½	15,14
Jas. Moore, Queensboro	Granary Filler	16	20	7	15	19½	77½	15
Geo. Ketcheson, Eldorado	do	13½	20	5	18	19	75½	15,10
F. Comerford. do	O. A. C. 72	15	21	5	16	16½	73½	15,14
Jas. Caskey, Madoc	Banner	11½	18	6	19	17½	72	2,10,15
F. Stewart, Eldorado	Mammoth Cluster	13½	18	5	16	18	70½	15,10
Chas. Robinson, do	O. A. C. 72	15½	12½	6	17	19	70	1.15
MAYNOOTH AGR. SOCIETY.								
Judge—H. E. Redner, Rednersville.								
J. H. David, Greenview	Am. Banner	15	22	7	18	22	84	
Robt. Davis, Maple Leaf	Mammoth Cluster	15	21	7	18	22½	83½	15
H. Bahm, Maynooth	Banner	14½	20	7½	18	21½	81½	15.10
F. Cassidy, Greenview	Bumper King	13½	22	8	17	20½	81	15
E. Douglas, do	do	14	20	7	18	20½	79½	
Wm. S. Kelusky, Maynooth	O. A. C. 72	13	21	6	18	21	79	
B. Davis, Maple Leaf	Mammoth Cluster	13½	20	7½	16½	21	78½	11
H. Scott, Maynooth	Great Dane	13½	19½	7½	17	20½	78	
Sam'l Robinson, do	Tartar King	13	21	7½	15	21	77½	15
Walter Kelusky, do	O. A. C. 72	11½	16	7½	18	20	73	15,10
Jno. McAlpine, do	Banner	12	17	6	17	20	72	15

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
HASTINGS.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
STIRLING AGR. SOCIETY.								
Judge—H. E. Redner. Rednersville.								
Geo. Griffin, Stirling	Banner..........	17	23	9	19	25	93	10
Geo. Drewey, Harold, R.R. 1 ..	do	18	23	8	18	25	92	
V. and E. Mathews, Stirling	do	17½	23½	8½	17	21½	88	10,15
R. Walker, Harold, R.R. 2	O. A. C. 72.......	17	23	8	17	22	87	15
C. M. Sine, Stirling, R.R. 1	Sensation........	17	23	8	17½	21	86½	
C. Tucker, Harold, R.R. 1	Banner..........	18½	17½	8	18	24	86	2,15
T. J. Thompson, Stirling, R.R. 1	O. A. C. 72.......	17½	18	8	18½	23	85	2,15
A. B. Fargey, do R.R. 2	Banner..........	16	20	7	18	23	84	10
Alex. Parks, do R.R...	....	13½	23	6	18	21	81½	
Jas. A. Bailey, do	Banner..........	14½	23	8	18	17½	81	15
M. Shea, do	do	16	20	5	20	19½	80½	10
E. Sarles, Harold, R.R. 1	Sensation........	14	20	4	18	23	79	
D. Wallace, Stirling, R.R. 1 ...	Banner..........	15½	18	8	17½	20	79	4,10
W. T. Sine & Son, do R.R. 1	Sensation........	13½	21	8	17½	18	78	11,15
C. U. Heath, do R.R. 1	Banner..........	14	20	8	17	17	76	10
A. Wilson, W. Huntingdon	O. A. C. 72.......	14	18	8	15	20	75	2
N. A. Heath, Stirling, R.R. 2	$1,000...........	13	13	8	17	23	74	2,4,15.10
C. W. Thompson, do	White Wave......	16	9	9	18	21	73	2,10,15
WOLLASTON AGR. SOCIETY.								
Judge—W. H. C. Roblin. Ameliasburg.								
H. Moore. The Ridge	O. A. C. 72.......	17½	22	9	18½	23	90	
H. Hennessy, Coe Hill	do	18	22	9	17	22	88	
C. McGregor, The Ridge	do	16	22	8	18	22	86	
D. Henderson, do	do	16	22	8	16	23	85	
Chas. Russan, Sr., Glen Alda ...	Banner..........	16	20	8	17	23½	84½	
A. Danford, Coe Hill	do	16	20	7	18	22	83	
E. Moore, The Ridge	O. A. C. 72.......	16½	18	8	18	22	82½	10
M. J. Henderson, do	do	15	18	7	18	22	80	10
Chas. Muffitt, Sr., Coe Hill	do	13	20	8	16	18	75	
HURON.								
BLYTH AGR. SOCIETY.								
Judge—G. A. Williams. Guelph.								
John Barr, Blyth	O. A. C. 72.......	18	24	9	16	22½	89½	
J. and F. Laidlaw, Walton	Banner..........	17	24	9	17	21½	88½	
Fred. Toll, Blyth......	do	17	19	9	18½	22¼	85¾	1
Jas. Cuming, do	Cluster..........	18½	10	9½	16½	21	75½	2
Grey Bros., do	O. A. C. 72.......	17	13	7	17	20½	74½	1
D. A. Laidlaw, do	do	17½	10	7½	18½	20½	74	2
R. Richmond, do	do	15½	14	8	16	19½	73	
R. Wightman, do	O. A. C. No. 3.....	15	14	8½	16	20½	72⅜	1
D. McCallum, do	O. A. C. 72.......	13½	10	6½	18½	22½	71	
Thos. Laidlaw, do	do	14½	10	7½	18	20	70	2

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OATS.

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HURON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
EAST HURON AGR. SOCIETY.								
Judge—Robt. Berry. St. Mary's. R.R. 1.								
R. H. Hoover, Walton	O. A. C. 72.......	17	17	9	18	23½	84½	2
Jno. G. Speir, Brussels, R.R. 2	do	18½	16	9	17½	22	83	1,15,2
H. Whitfield, do	do	18½	17½	6	16½	23	81½	2,15
R. T. Taylor, do	do	19	11	9½	19	22½	81	1,15
W. R. Moses, Bluevale, R.R. 2..	Golden Gem......	17½	15½	9½	17	22½	80⅚	1,15
O. Turnbull & Son, Brussels,R.R.2	O. A. C. 72.......	16	17	4	19	22	78	2,1
R. L. Nichol, do R.R. 4	do	16½	15	9½	15	21½	77½	10,15
Jno. Crerar, do	do	17½	12	8	16½	22	76	15,1
Geo. E. Spieran, do	do	18½	10½	5	19	22½	75½	15,1,2
Wm. Slemmon, do	Banner..........	18	8	8	19	22	75	1,2,15
W. R. Proudfoot, do	Green Mountain..	16½	16	8	14	21½	74⅚	2,14
F. A. Nichol, do	O. A. C. 72.......	16½	10	9½	15	20½	71½	1
E. Fulton, do	do	15½	10	6	17½	21½	70½	1
HOWICK AGR. SOCIETY.								
Judge—J. A. Mallough Dungannon.								
Alex. McLaughlin, Gorrie, R.R. 1	O. A. C. 72.......	16	23	9	19	22	89	
Wm. Brown, Sr., do R.R. 1	do	16½	22	8	18	21	85½	15
Jas. A. Edgar, Wroxeter	Banner..........	17	20½	7	18	22½	85	10.1
G. Edgar, Gorrie, R.R. 2	Swedish Select...	16	20	9	18	21½	84½	1,15
T. E. McKercher, Wroxeter, R.R.2	O A. C. 72......	17½	18	8½	18	22	84	1
H. Sparling, Gorrie, R.R. 2	Swedish Select...	16	20	9	18	20½	83½	15
J. W. Gamble, do R.R. 1	Granary Filler...	16½	20	8	17	21½	83	15,1
R. Wilkin, Palmerston, R.R. 3..	O. A. C. 72......	16	18	9	19	20½	82½	2,10
Hugh Edgar, Gorrie, R.R. 2	do	16	17	8½	18	22	81½	2.1,15
Jas. Downey, Fordwich	do	16	18	8	18	21	81	1,15
A. Kiel, Gorrie, R.R. 2..	do	16	16	7	18	22	79	1,15
Robt. F. Edgar, do R.R. 2..	Mammoth Cluster	14½	17	8½	16	20	76	1,15
R. Sanderson, Fordwich, R.R.1	O. A. C. 72......	16	16	7	16	20	75	1,15,2,5
Jas. Johnston, Gorrie, R.R. 1...	do	15½	15	7½	16	20	74	1
TURNBERRY AGR. SOCIETY.								
Judge—Robt. Berry. St. Mary's, R.R. 1.								
R. Wilton, Wingham, R.R. 1	O. A. C. 72.......	19	24	9	19	23½	94½	
H. T. Perdue, do	do	18½	20	9½	19½	23	90½	14,13
W. J. Currie, do R.R. 5	do	17½	23	9	18½	22	90	15
A. M. Perdue, Clifford	do	17½	20½	8½	20	23	89½	15,2
Chas. Carter, Wingham, R.R. 5	do	17½	22	9½	18	22	89	15
Wm. Webster, Lucknow	Prince of Wales...	16½	23	9	18½	23	88⅚	15
Thos. Fortune, Wingham, R.R. 1	O. A. C. 72.......	18½	16	9½	19½	23	86½	14
I. J. Wright, do R.R. 1	do	17½	17	9	18½	23	85	2.15
G. N. Underwood, do R.R. 1	do	18	15	9	19	22	83	1,15
F. Henry, Lucknow, R.R. 5....	Swedish Select...	16	22	9	15	19	79⅚	15,2

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OATS.

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HURON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
ZURICH AGR. SOCIETY.								
Judge—Lee Cascadden. Aylmer West.								
J. A. Manson, Zurich	O. A. C. 72	19½	25	8	18	23	93½	
E. G. Kruger, Dashwood, R.R. 1	do	18	25	9	18	22	92	
O. Klopp, Zurich, R.R. 2	do	18	23	9	18	22	90	15
Sam'l Schoch, do R.R. 2	Banner	16	20	10	18	22	86	
Alex. Rannie, do R.R. 3	O. A. C. 72	18	18	8	20	21	85	1
W. C. Pearce, Hensall	do	20	12	8	18	23	81	2,1
E. F. Klopp, Zurich	do	17½	13	8	18	22	78½	2
H. Walters, do R.R. 2	do	16	12	9	18	21½	76½	2
H. Kruger, do R.R. 2	do	13½	14	9	18	21	75½	1
E. Broderick, Exeter	Banner	15	10	9	18	21	73	2,1
KENORA.								
KENORA AGR. SOCIETY.								
Judge—J. McKay, Dryden.								
Gould Bros., Kenora	Banner	16½	22	8½	18	19	84	2,14
S. Sundine, Keewatin	do	15½	19	8	18	21	81½	1
McDonald Bros., Kenora	Abundance	14	20	8	18	18	78	2
A. T. Ascough, do	Gold Rain	15½	18	6	17	20½	758	1
H. Thorpe, do	Banner	13	16	8	18	19½	74½	15,2
Wm. McKreith, do	do	14	19	7½	15	18½	74	1
H. Webster, do	do	14½	14	8	15	19	70½	15,2
KENT.								
EAST KENT AGR. SOCIETY.								
Judge—R. H. Harding, Thorndale.								
P. Cameron, Thamesville	O. A. C. 72	16	21	9	19	22	87	14
Geo. Barker, do	Scottish	17	22	8	19	22	86½	8
H. F. Hetherington, do	Abundance	17	20	9	18	21	85	
Jas. Brisley, do R.R. 4	O. A. C. 72	16	22	8	18	20	84	
P. Secord, do	Scottish	13	22	9	19	22	838	
Jas. Winters, do	White Cove	16½	20	8	18	22	82½	8
Jno. A. Dick, do	O. A. C. 72	17½	20	7	15	22½	82	
D. Winter, Northwood	Steve's W. Cove	16½	22	7	19	19	81½	8
Jas. Sherman, Thamesville	Mammoth Cluster	17	15	8	15	22	77	10
Jno. Miller, do R.R. 4	Waverly	14½	20	8	16	19½	768	
E. D. Carswell, do	O. A. C. 72	13½	13	9	19	21	75½	
C. Gardiner, do R.R. 4	Waverly	14	18	8	18	19	758	
J. B. McDowell, do	Victor	15	20	8	12	21	748	
Robt. George, do	Scottish	14	22	8	10	21	738	
David Fysh, do	Sensation	15½	15	7	15	21½	728	5
Wm. Featherston, do	Victor	14	15	8	15	19	71	

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OATS.

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KENT.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
WALLACEBURG AGR. SOCIETY.								
Judge—R. H. Harding, Thorndale.								
H. Forbes, Tupperville, R.R. 3..	Imp. Banner......	18½	23	7	18	22½	89	
Jno. Coveney, Electric, R.R. 1..	Reg. Banner......	18½	20	8	19	22½	88	4
W. McCreary, Wallaceburg, R.R.2	Imp. Banner......	15	22	7	20	21½	85½	
Orrie Crowe, do R.R.5	Reg. Banner......	15½	22	6	20	20½	84	
Daniel Coveney, Electric R.R. 1	do ...	14½	17	9	20	22	82½	4
D. Crawford, do R.R. 1	Abundance.......	16	20	6	19	20	81	
C. Crowe, Wallaceburg, R.R. 5	Imp. Banner......	18½	17	7½	17	20½	80½	
Geo. Hazzard, do R.R. 5	Banner...........	13	22	7½	17	20½	80	
D. L. McCreary, do R.R. 2	Imp. Banner......	15	17	5½	20	21½	79	
J. M. Langstaff, Tupperville, R.R. 3	do ...	14½	19	6	18	21	78½	
W. C. Gordon, Electric R.R. 1..	Bonanza.........	14	20	5	20	21	78§	
M. I. O'Neil, Wallaceburg, R.R. 4	White Wave......	14	17	8	20	20½	77½	§
Wm. Barnier, do R.R. 2	....	15	18	7	16	21	77	
Geo. Mickle, do R.R. 2	Banner...........	13	18	7	18	20	76	
LAMBTON.								
EAST LAMBTON AGR. SOCIETY. *Judge—W. P. Hinman, Toronto.*								
S. W. Hair, Watford	O. A. C. 72.......	19¾	24	9¾	20	23	96½	
Jno. Zavitz, Alvinston, R.R. 7	Banner...........	19½	24	9¾	20	23	96¼	
E. Powell, Watford	Irish Victor......	19¾	24	9½	20	23½	94¾	§
Russell Powell, do	Siberian.........	19½	24	9½	20	22¾	93¾	§
E. H. Shirley, do R.R. 3	Silver Mine.......	19½	23½	9¾	20	22	92¾	§
Jas. A. Hair, do R.R. 7	O. A. C. 72.......	19¼	23	9	19	22	92¼	
W. Annett & Sons, do	Banner...........	18½	20	9¾	19½	22¾	90½	
Alex. McCabe, Alvinston, R.R. 7	Abundance.......	17	21	8¾	19½	23½	89¾	15
Jno. A. Gilliland, Watford......	Silver Mine.......	19	22	9	19	22½	89½	§
E. A. Kidd, do. R.R. 3	Banner...........	18¾	20	8	19¾	22	88½	15,12
W. E. Parker, do R.R. 8	do	18½	19	10	20	20½	88	5
L. G. Foster, do	Bonanza.........	19¼	21	9	18	21½	86¾	§14,2
Jno. Kidd, do R.R. 3	Siberian.........	15½	22	8	20	22	85½	§
R. E. Milton, Alvinston, R.R. 7	Elmhurst........	20	18	8	17	22	83§	
PETROLIA AND ENNISKILLEN AGR. SOCIETY.								
Judge—R. H. Abraham, B.S.A., Chatham.								
Thos. Simpson, Glenrae	Petrolia..........	19	24	9½	19½	23½	95½	
D. Dewar, Wyoming	do	17	24	9	19	24	93	
P. L. McPhedran, Petrolia, R.R.3	Silver Mine......	16	24	9	17	23	89	
Jno. Kirkpatrick, do R.R. 4	O. A. C. 72.......	17	19	10	19½	23	88½	
Wm. Simpson, Glenrae	do	17½	23½	9	16	22	88	
Jos. Hackett, Petrolia	....	15½	24	9	17	22	87½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
LAMBTON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
PETROLIA AND ENNISKILLEN AGR. SOCIETY.—*Con.*								
N. Cascadden, Oil City	....	15	23	10	19	18	85	
Wright Bros., Petrolia	....	16½	23	9	14	22	84½	
F. D. McDonald, do R.R. 3	Banner..........	16	21	7	16½	20	80½	
W. Rainsbury, do	....	17½	12	9	18	23½	80	1
A. Brock, do	O. A. C. 72.......	16	16	10	15	22	79	
W. Rawlings, do	Banner..........	16	12	9	17	23	77	10
PLYMPTON AND WYOMING AGR. SOCIETY.								
Judge—R. H. Abraham, Chatham.								
Jos. Bryson, Wyoming......	....	19	23	9	19½	24½	95	
Chas. F. Smith, do	....	18	24	9	19	23½	93½	
Robt. Jardine, do	....	17	24	9	19½	23½	93	
F. Donald, do	....	17	24	9	18	24	92	
Jno. Donald, do	....	18	20	10	19½	23½	91	
Thos. Anderson, do	....	18	20	9	19½	23½	90	
H. Hunter, Petrolia	....	18	20½	9	18½	23½	89½	
R. R. Smith, Wyoming	....	17	23	9	16½	22½	88	
Jas. Bryson, do	....	15	23	9	18	20	85	
M. A. P. McFarlane, Camlachie	....	16	24	8	14	19	81	
LEEDS.								
BROCKVILLE AGR. SOCIETY.								
Judge—W. H. C. Roblin, Ameliasburg.								
A. J. Bushfield, Lyn............	O. A. C.	18	20	8	19	23	88	10
W. H. McNish, do	Reg. Banner......	17	20	9	18	23	87	10
J. W. Stewart, do	O. A. C.	16	18	8	18	20	80	2,10
Thos. Murray & Son, Tin Cap ..	Banner..........	16	20	7	15	21	79	5
C. H. McNish, Lyn............	do	15	15	8	18	22	78	10,5
J. S. Moore, Bellamy,. R.R. 1..	Granary Filler...	12	18	7	18	19	74	10,2,5
Thos. H. Palmer, do R.R. 1..	Banner..........	13	15	8	16	20	72	5,10
Geo. Brown, Lyn	O. A. C.	14	15	8	15	19	71	2,10
H. J. Vandusen, Maitland, R.R. 1	do	12	15	8	16	19	70	4,10,5
LANSDOWNE AGR. SOCIETY.								
Judge—S. G. Gourlay, Ottawa.								
W. H. Rath, Lansdowne	O. A. C. 72.......	19½	24	9	19	23½	95	
O. W. Landon, do	Banner..........	19½	23½	9	19	22½	93½	
Roy Brackenridge, do	O. A. C. 72.......	18½	23½	9	19	22½	92½	
J. H. Donovan, do	Banner..........	18	22	8½	18	22½	89	
Jos. Shields, do	do	18½	22	9	16	22½	88	
Robt. Shields, do	do	18	21	9	16	22½	86½	
W. B. Steacy, do	O. A. C..........	17½	21	8½	16	22½	85½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
LEEDS.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
LANSDOWNE AGR. SOCIETY.—*Con.*								
J. B. Wilson, Lansdowne, R.R. 2	Granary Filler....	16	22	7	19	21	85	
W. Landon, do	Abundance.......	17	20	8	18	21½	84½	2
F. Doak, do	Golden Cluster...	17½	20	8	16	22	83½	6
H. McD. Gray, do R.R. 2	O. A. C. 72.......	15½	20	8	16½	21	81	
Jno. Lappan, do	Banner..........	16	19	8	16	20½	79½	
H. A. McNeely, do	O. A. C. 72.......	16½	19	8	15	20	78½	
T. Burns, do	Washington......	16	20	8	16	19	77§	
W. A. Deir, do	Newmarket......	16½	19	8	15	19½	76§	
Geo. W. Ruttle, do	Washington......	15½	18	7½	16	20	75§	
F. H. Earl, do	Mammoth Cluster.	15	17	7	15	20	74	
Geo. A. Loney, do	Banner..........	16	16	7	15	19	73	
G. S. McCullough, do	Victory..........	15	16½	7	15	20	71½	§
Jno. Elliott, do	Banner..........	14½	15½	7	14	19	70	
LINCOLN.								
CLINTON AGR. SOCIETY.								
Judge—W. P. Hinman, Toronto.								
D. H. Moyer, Campden	O. A. C. 72.......	19	24½	10	20	22	95½	
S. H. Culp, Vineland, R.R. 1..	do	19	24½	9	20	22½	95	
Jno. A. Book, Beamsville	Banner..........	20	21	10	20	23½	94½	
A. W. Culp, do R.R. 1	O. A. C. 72.......	20	21	10	20	22	93	
J. A. Lind, do R.R. 1	do	19½	21	9¾	20	22½	92¾	15
D. Grobb, do R.R. 2	Banner..........	19½	22	8½	20	22	92	
Wm. Boughner, do R.R. 2	O. A. C. 72.......	19½	22	9	17	23	90½	
A. E. Field-Marshall, do	do	19	19	9	17	21	85	
Jas. Crown, do R.R. 1	do	19	9	10	20	21¼	79¼	2.15
MONCK AGR. SOCIETY.								
Judge—Jas. McLean, Richmond Hill.								
N. Shapley, Wellandport, R.R. 1	O. A. C. 72.......	15	19	9½	20	22	85½	2,15
O. McPherson, St. Anns	do	15	22	7½	18	19½	82	14,15
A. Kennedy, do	do	14½	19	7½	18	20	79	15,14
John Cosby, Wellandport	do	14	18½	6½	18½	19½	77	14,15
Benj. Atkinson, do R.R. 3	Mammoth Cluster.	12½	22½	8½	14	19	76½	5
L. Traver, do R.R. 1	O. A. C. 72.......	14	18½	7	16	20½	76	5,15
L. F. Blanchard, do R.R. 3	Banner..........	14½	15	7	15	20	71½	14,15,2
G. Robbins, do R.R. 3	O. A. C. 72.......	12½	15	7	18	18	70½	14,15
NIAGARA TOWN AND TP. AGR. SOCIETY.								
Judge—W. P. Hinman, Toronto.								
J. J. Craise, Niagara-on-the-Lake, R.R. 1	Granary Filler....	17½	24	9	19½	22¼	92¼	
W. H. Sheppard, do R.R. 1	Am. Banner......	19½	23	9½	17	23	92	
C. H. Bufton, do R.R. 1	do ...	19½	23½	8	18	22¼	91¼	12
R. G. Dawson, do R.R. 2	Reg. Banner......	18¾	21	9½	19½	22	90¾	10
L. L. Hutcheson, Virgil	O. A. C. 72.......	17	24	8½	20	21	90½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

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LINCOLN.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
NIAGARA TOWN AND TP. AGR. SOCIETY.—*Con.*								
Thos. E. Hiscott, Niagara-on-the-Lake. R.R. 2	Am. Banner	18¾	21	9	19	22	89¾	10
Percy Lees, do R.R. 2	O. A. C. 72	18	21	9½	19	21	88½	
A. C. Taylor, do R.R. 1	Banner	17¾	21	9	19	21½	88¼	10,15
N. Stevens, Virgil	Early Yielder	17¾	23	8	19½	21¼	87½	§
J.R. Murray, Niagara-on-the-Lake	Am. Banner	18	20	7	19½	21½	86	10,5
Chas. S. Knox, do R.R. 2	Early Yielder	18	19	10	19½	20	84½	§10,14
Jno. Stewart, do R.R. 2	Ligowa	19	20	8½	17	21½	84§	
R. Shaw, do R.R. 2	Abundance	17½	21	8½	16	21	84	
Jas. W. Hope, do R.R. 1	Banner	17	18	9½	19	20½	84	2
Jos. A. High, do R.R. 2	Am. Banner	17	20	7½	19	20¼	83¾	10,14
A. E. Niven, do R.R. 2	Ligowa	17¾	20	7½	18	21	82¼	10,15
MIDDLESEX								
CARADOC AGR. SOCIETY.								
Judge—C. C. Rokeby, Port Rowan.								
D. Campbell, Mt. Brydges, R.R. 2	O. A. C. 72	18	22	9	19½	22½	91	
Alex. Lamont, do R.R. 2	Banner	18	22	9	19	22½	90½	
Jno. S. Walker, do	O. A. C. 72	17½	22	9	19½	22	90	
C. Troth, do R.R. 4	do	17½	22½	9	19	21½	89½	
J. A. Crawford, Strathroy, R.R. 1	do	18	22	9	17½	22½	89	
M. S. Leitch, do	do	17	21	9	19½	22	88½	
D. A. McNeill, do R.R. 1	do	17	21	8½	19½	22	88	
W. W. Watson, Mt. Brydges, R.R. 2	Banner	18	22	9	17	21½	87½	
P. Runnalls, do R.R. 2	O. A. C. 72	17	21	8½	19½	20½	86½	
A. M. McNeill, Strathroy, R.R. 1	do	18	13	9½	19½	22½	82½	1
N. McGugan, do R.R. 1	do	15½	23	9	14	21	82½	
R. E. Miles, Mt. Brydges, R.R. 1	do	17	21	8½	16	20	82½	15
N. H. Courtis, do R.R 2	Silver Mine	17½	21	9	15	21½	82§	
Stanley Troth, do RR. 4	North West	16½	21	9	16½	20½	81½	15
DORCHESTER AGR. SOCIETY.								
Judge—Cecil Schuyler, Woodstock.								
C. Beecham, Mossley, R.R. 2	O. A. C. 72	19	23½	8	19½	23½	93½	15,12
H. Connor, do R.R. 2	do	17	24½	7	19½	23	91	
H. Higgins, do R.R. 2	O. A. C.	16½	22	9	19½	23	90	15
R. G. Boxall, do R.R. 2		17¼	24	7	19½	22	89¾	12
H. Mathews, Putnam	Granary Filler	16½	24	9	18	21	88½	15
A. A. Irwin, Dorchester, R.R. 1	Banner	16¾	22	8	18½	20½	85¾	2
Jos. Johnson, Mossley, R.R. 2	O. A. C. 72	16	15	9	17	21	78	10,12
Jos. Woods, Dorchester, R.R. 1	do	13	14	9	19	18½	73½	2

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OATS.

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MIDDLESEX.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
EAST MIDDLESEX AGR. SOCIETY.								
Judge—C. Schuyler, Woodstock.								
R. T. Baty, Wilton Grove, R.R. 1	Banner	18¾	24	9¾	19½	23¾	95¾	2,15
Jno. Armitt, Hyde Park	do	18½	24	8¾	19½	23¾	94½	15
A. Cornish, Wilton Grove, R.R. 1	do	17¾	24	8	19½	23	92¼	
W. Baty, do R.R. 1	do	17¾	23	9½	15½	22½	88¼	
Geo. Riddle, do R.R. 1	do	15¾	22	9	19½	20¾	87	15
Wm. Hueston, Thorndale	do	16	22	9	19	20	86	
Jas. H. Wheaton, do	O. A. C. 72	13¾	24	8	18	21½	85¼	15
W. E. Grieves, Wilton Grove, R.R. 1	Banner	16	15	9	18	21	79	10,15
MELBOURNE AGR. SOCIETY.								
Judge—Jas. Pullin, Woodstock, R.R. 1.								
W. P. Cornish, Appin		17	23	9	20	21	90	
Fred. Eaton, do		16	23	8	19	23	89	
M. McNeil, Melbourne		17	23	8	19	21	88	
M. McGugan, do		17	23	8	10	21	79	
H. A. Fletcher, do		14	18	6	19	20	77	
G. Hyndman, do		12	20	8	16	20	76	
Chas. B. McLean, do		14	20	4	17	20	75	15
McGILLIVRAY AGR. SOCIETY.								
Judge—Jas. H. McKee, Shelburne, R.R. 4.								
W. L. Corbett, Ailsa Craig, R.R.2	O. A. C. 72	17½	24	9	19½	23½	93½	
J. J. Graham, do R.R.3	Banner	16	22½	9	18½	22	88	
F. J. Neil, do R.R.3	Devonshire Eclipse	17	21	8½	17	21½	85	14
J. H. Amos, do R.R.3	O. A. C. 72	15½	22	9	16	21½	84	
A. Erskine, Parkhill, R.R. 8	do	15½	13	9	17½	21½	76½	1
W. J. Robinson, Ailsa Craig	Banner	16½	13	9	14	22	74½	1,14
O. Amos, Parkhill, R.R. 8	do	16	9	9½	17	22	73½	1
J. C. Reid, do R.R. 8	do	15	15	9	13½	20½	73	1
Jas. Darling, do R.R. 8	do	15	8	9	19	21	72	1,2
MOSA AND EKFRID AGR. SOCIETY.								
Judge—Jas. Pullin, Woodstock, R.R. 1.								
W. H. Reycraft, Glencoe	Banner	18½	23	8	19	23½	92	
D. N. Munroe, do	O. A. C. 72	16	20	8	18	22	84	
W. A. McCutcheon, do	do	13	24	8	18	20	83	
Thos. Henderson, do	do	15	19	8	19	20	81	14
A. B. McDonald, do	do	16	16	8	16	22	78	

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OATS.

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MIDDLESEX.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
MOSA AND EKFRID AGR. SOCIETY. —*Continued.*								
Jas. E. Corbett, Glencoe	Chester	13	20	8	16	20	77	14
Wm. Munroe, do	O. A. C. 72	14	16	8	16	22½	76½	15
H. McTaggart, do	Banner	13	18	8	16	21	76	
D. McKellar, do	O. A. C. 72	14	18	5	18	20	75	
Jas. McRae, do	do	14	20	8	16	15	73	
Jas. Walker, do	Banner	13	21	6	12	19	71	
NORTH MIDDLESEX AGR. SOCIETY.								
Judge—Lee Cascadden, Aylmer.								
A. E. Rosser, Ailsa Craig	O. A. C. 72	19	22	9½	18	23	91½	1
John Oliver, Denfield, R.R. 1	Wyatt	18	25	10	17	23	91⅜	
D. McArthur, Ailsa Craig	Banner	16	25	10	18	21	90	
Leitch Bros., do R.R. 1	do	16½	22	10	18	22	88½	
J. C. Shipley, do R.R. 1	Wyatt	15½	24	8	17	20½	83⅜	15
Ed. Hughes, do R.R. 1	O. A. C. 72	17	15	8	20	22	82	1
Jas. McFarlane, do R.R. 1	do	17½	15	8	18	22	80½	1
Wm. Kennedy, do	Banner	14½	20	8	17	20	79½	15
Geo. Hindmarsh, do	O. A. C. 72	14½	15	8	19	22	78½	1
Jas. Darling, Parkhill, R.R. 8	Banner	15	15	8	18	22	78	1
N. McLachlin, Ailsa Craig	do	15½	12	10	18	22	77½	1
Chas. Lynn, Clandeboye, R.R. 1	Abundance	16	15	7	18	17	73	1,2
STRATHROY AGR. SOCIETY.								
Judge—Jas. H. McKee, Shelburne, R.R. 4.								
A. K. Campbell, Strathroy, R.R. 1	O. A. C. 72	16	23½	9½	19	21	89	
D. Leitch, Mt. Brydges	do	16	23	9	19	21½	88½	
W. B. Ferguson, Strathroy, R.R. 2	Imp. Banner	16	22	9	19½	21½	88	15
M. C. Toohill, do R.R. 3	do	16½	22	8	18½	22	87	
Frank Hull, Kerwood	do	14½	23	8	18½	21½	85½	
Jas. Sabine, Strathroy, R.R. 2	O. A. C. 72	15½	22	9	19	19½	85	15
D. Limon & Sons, do R.R. 2	Imp. Banner	15½	21	9½	19	19½	84½	15,14
Jas. Dymond, Kerwood, R.R. 2	do	11½	23	8½	19	21	83	
E. H. DeGex, do R.R. 2	do	15½	21½	8	16½	21	82½	
Chas. Musby, do R.R. 2	Silver Mine	14½	20	8½	17	21	79⅜	15
C. H. Foster, do	Granary Filler	16	13	8½	19	21	77½	1,14
A. B. Douglas, Strathroy, R.R. 5	O. A. C. 72	14	10	9	19	21½	73½	1
UNITED INDIAN AGR. SOCIETY.								
Judge—C. C. Rokeby, Pt. Rowan.								
A. Antone, Southwold	O. A. C. 72	16½	20	8½	16	21	82	
Jos. Antone, do	do	16½	21	8	16	20	81½	
Jno. A. Riley, Christina	do	16½	18	8	17	21½	81	5
Smith Antone, Muncey	do	17	14	8½	19	21½	80	5

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OATS.

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MIDDLESEX.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
UNITED INDIAN AGR. SOCIETY. —*Continued.*								
Geo. Nicholas, Muncey	O. A. C. 72......	17	14	8½	19	21	79½	5,4
Sam'l Miskokoman, do	do	17½	13	8	19	21½	79	5
W. Henry, do	do	17½	13	8	17½	22½	78½	5 4
Thos. Summers, do	do	16	14½	8	18	21½	78	5
Chas. E. French, Christina	Banner..........	16½	16½	8	16½	20½	78	5
Enoch Hill, Muncey	O. A. C. 72.......	17	13½	8	16	20½	75	5,10,2
T. G. Riley, Christina	do	17	12	7½	16½	21½	74½	5
M. French, do	do	16	12½	8	17	20½	74	5
Jno. Sutherland, Muncey	do	16	12	7½	16½	20½	72½	5,15
O. DeLeary, do	do	17	9	7	16½	21	70½	5,4,10
WESTMINSTER AGR. SOCIETY.								
Judge—W. P. Hinman, Toronto.								
F. Poole, Lambeth	O. A. C. 72.......	20	23	10	20	23	96	
W. C. Pack & Sons, Byron, R.R.1	do	19½	22½	10	20	23	.95	15
H. Willis, London, R.R. 1	do	19½	23	9¾	19½	22¾	94½	15
O. D. Griffith, Lambeth, R.R. 3..	The Industrial..	20	23½	9¾	18	23¾	93⅜	
Weldwood Farm, London, R.R. 1.	O. A. C. 72......	19½	19½	10	19½	24	92½	12
W. E. Wright & Son, Glanworth	Banner..........	19	22	8½	20	23¾	92¼	
H. Bennett, do	do	19	21½	9½	19	22½	91½	
H. Bagnall, Wilton Grove, R. 2	O. A. C. 72......	18¾	20	10	19	22	89¾	15
Wm. Taunton, Byron	Banner..........	19½	21	10	17½	21½	89½	15,10
Eli Smale, Wilton Grove, R. 2..	do	18	20	10	20	21¼	89¼	10
Col. Robt. McEwen, London, R.R. 4	O. A. C. 72......	20	16	10	19¾	23½	89¼	2
H. V. Fisher, Wilton Grove, R. 2	Banner..........	17¾	10	9	20	21¾	78½	2
MUSKOKA.								
GRAVENHURST AND MUSKOKA AGR. SOCIETY.								
Judge—W. Hickson, Bobcaygeon								
S. Polmateer, Gravenhurst	O. A. C. 72......	16½	23	9	20	21	89½	10
C. Laycock, do	do	16	23	9	20	21	89	
W. Ruttan, do	Rennie's E. Yielder........	17½	22½	9	18	21	88	15
Robt. G. Young, do	O. A. C. 72.......	17	23	6	19	22	87	10
O. E. Taylor, Reay	Abundance.......	17½	22	8	16	22½	86	
Robt. McKay, Gravenhurst	O. A. C. 72......	16½	20	9	19	21	85½	
W. H. Tincombe, do	Banner..........	15	22	9	18	21¼	85¼	10
B. Laycock, do	do	17	20	9	18	21	85	15
Geo. York, do	O. A. C. 72.......	16	22	8½	18	20	84½	4
Josh. Short, do	New Stirling....	16½	22	7	18½	20	84	10
J. Groh, do	O. A. C. 72.......	15½	20	8	18½	21½	83½	
G. W. Miller, Gravenhurst, Box 179	do	14½	22	8½	19	19½	83½	15
W. W. Morrison, Reay	Banner..........	14	22	9	18½	20	83½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
MUSKOKA.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
GRAVENHURST AND MUSKOKA AGR. SOCIETY.—*Con.*								
E. J. Hammond, Gravenhurst ..	Abundance......	15½	19	9	17½	20½	81½	2
H. Cook, Housey's Rapids	Early Multiplier.	15	19	8½	18	21	81½	4,10
Wm. White, Gravenhurst	Banner..........	16	19	7	18	21	81	15
D. Morrison, Reay	do	14½	13	9	18½	20½	75½	2,15
H. B. S. Palmer, Gravenhurst..	Banner and M. Cluster........	15	21	6	12	20	74	
MEDORA AND WOOD AGR. SOCIETY.								
Judge—Wilson Black, Stroud.								
Thos. Aikins, Port Carling	O. A. C. 72......	16	24	8	19	20	87	
Arch. Mitchell, Bardsville	do	16½	23	8	19	20	86½	
F. W. Knight, Brackenrig	do	16	23	8	19	20	86	
R. C. Butler, Point Kaye	20th Century....	16	22	8	18	20	82⅜	
Jno. Davidson, Brackenrig	O. A. C. 72......	16	18	8	17	20	79	2,15
W. K. Foreman, Port Carling ..	Banner..........	15½	18	8	17	20	78½	2
W. P. Green, Bardsville	Yellow Russian..	14½	18	7½	18	18½	76½	15,2
H. Foulkes, Brackenrig	O. A. C. 72......	16	15	7½	17½	20	76	2,15,14,10
T. W. Knight, do	do	15	16	7½	18	18½	75	
Wm. Chambers, Bardsville	do	15½	14	7	18	19½	74	2,10
Chas. Donald, Port Carling ...	do	15	15	7	16	20½	73½	1
D. G. Fraser, Brackenrig	Imp. Scotch.....	13½	16	8	17	17½	70⅜	1,2,15,13
NORTH MUSKOKA AGR. SOCIETY.								
Judge—Alex. Morrison. Creemore, R.R. 2.								
Arch. Madill, Allensville	Ligowa..........	18	25	9	18	23	93	
Jno. Pleace, Huntsville	O. A. C. 72......	17	25	8	18	23	91	
W. M. Sinclair, do Box 257	Banner..........	16	24	9	19	22	90	
G. B. Richards, do	do	17	23	8	18	22	88	
T. R. Hill, Hillside	do	17	22	8	17	22	86	10
A. Cochrane, Huntsville	do	16½	22	8	17	22	85½	15
R. J. S. Hill, Hillside	do	16	22	8	17	22	85	15,14
Jos. Bradley, Allensville	O. A. C. 72......	15½	22	7	17	20½	82	10
J. E. May, Ravencliffe	Siberian.........	14½	22	7	17	20½	81	15
S. Martin, do	Banner..........	14	21	7	17	20	79	10,11
Arch. Cookson, Huntsville, Box 2	do	13	18	8	17	20	76	2,14
SOUTH MUSKOKA AGR. SOCIETY.								
Judge—W. Hickson. Bobcaygeon.								
H. L. Goltz, Bardsville	O. A. C. 72......	17½	23	9	19½	25½	92½	15
H. E. Beaumont, Bracebridge..	do	17	23½	9½	20	22	92	15
Wm. Naismith, Falkenburg ..	do	16½	22	9	20	22	89½	15,10
C. H. Kaye, Bracebridge	O. A. C. No. 7...	18½	20	8½	19	23	89	
Alex. Barron, do	Banner..........	17	22	8	19	22	88	15
A. Goltz, Bardsville	O. A. C. 72......	14½	24	8	18	21½	86	
H. Richards, Bracebridge	Abundance......	17	22	7½	18	21	85½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
MUSKOKA.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
SOUTH MUSKOKA AGR. SOCIETY. *Continued.*								
Campbell & Richards, Alport..	O. A. C. 72......	15½	20	10	18	21	84½	10
Wm. Barron, Bracebridge	Banner..........	15	23½	6	19	19½	83	
Mrs. M. Yearly, Falkenburg	O. A. C. 72......	16	20	8½	20	18	82½	1
Samuel Holden, Bracebridge ...	Granary Filler..	17	22	6	18	19	82	15
J. B. Kaye, do	O. A. C. 72......	15	20	8	19	19	81	15
Wm. McNab, do	do	16	20	7	19	19	81	2
Jas. Fitzmaurice, do	Granary Filler...	18½	24	8	5	24	79½	
H. Buckerfield, do	Storm King.....	15½	24½	8	12	19½	79½	
STEPHENSON AND WATT AGR. SOCIETY.								
Judge—Alex. Morrison, Creemore, R.R. 2.								
N. Hammell, Raymond	Reg. Banner.....	17	25	9	18	23½	92½	
H. Creaser, Ullswater	O. A. C. 72......	17	24	9	19	22½	91½	
Leslie Bunn, do	do	17	24	9	19	22	91	15
Chas. Nichol, Port Sydney	Reg. Banner....	16½	24	9	19	22	90½	
Jno. N. Billingsley, Raymond ..	do	17	24	8	18	22	89	
H. Rawson, do	do	17	23	8	18	22	88	
F. Johnston, Utterson	Banner..........	17	23	8	18	21	87	
Jno. Lloyd, Ufford	20th Century....	16½	23	8	18	20½	86	
A. J. Hughes, Port Sydney	Banner..........	16	22½	8	17	22	85½	
Geo. Hammell, Raymond	Reg. Banner.....	16	21	6	18	23	84	12,14
Herb. Putnam, Ullswater	O. A. C. 72......	15½	22	8	17	21	83½	15
W. Hamilton, Raymond	Banner..........	15	23	6	16	22	82	15
Thos. Hammell, do	Reg. Banner....	14½	21	7	17	21½	81	14,15
W. F. Somerset, Port Sydney ..	O. A. C. 72......	14½	21	7	17	20½	80	14
Jas. McKenzie, Raymond	Reg. Banner.....	15	22	6	15	21	79	
H. Patterson, Utterson	do	13	21	7	17	20	78	
Thos. Graham, Raymond	Am. Banner.....	14	21	6	16	19	76	
Jno. A. Patterson, Utterson ...	Storm King.....	12	19	6	18	19	74	
Wm. Jas. Hammell, Raymond..	Reg. Banner.....	13	17	6	17	19	72	
NIPISSING.								
BONFIELD AGR. SOCIETY.								
Judge—D. Smith, Smithville.								
Geo. Proulx, Bonfield	O. A. C...........	17	20	8	18	21	84	
A. Rose, do	Victory..........	18	20	7	17	21	83	
J. A. Bowin, do	O. A. C. 72......	18½	20	7	16	21	82½	15
S. Boulanger, Great Desert	Banner..........	15	22	8	18	19	82	
J. H. Brissonneault do	do	15½	20	6	17	20	78½	
Jos. Rose, Bonfield	....	15½	18	8	15	21	77½	15
P. Brissonneault do	....	15	17	7	18	20	77	15
O. Foisy, do	O. A. C..........	15	18	8	16	19	76	15
S. Beauleau, do	....	15½	18	7	16	19	75½	15
A. Bedard, do	....	15	18	7	16	18	74	
A. Benoit, do	....	15½	18	7	14	18	72½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

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NIPISSING.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
STURGEON FALLS AGR. SOCIETY.								
Judge—D. Smith, Smithdale.								
P. J. Steep. Verner, R.R. 1....	Early Yielder....	17½	20	8	16	21	82½	
R. Steep, do do	O. A. C. 72......	16½	21	8	18	18½	82	
Jos. Lalonde, Sturgeon Falls....	Banner..........	17½	20	7	16	20	80½	
L. Delorme, do	do	16½	20	9	15	19	79½	
F. Philion, do	do	16½	20	7	14	21	78½	10
E. Leblanc, do	do	18	18	7	14	21	78	10
Thos. Allaire, do	do	16½	18	8	15	18	75½	10
F. Delorme, do	do	17	18	8	12	20	75	15
C. Leach, do	do	15	17	7	15	19	73	10
L. Champagne, do	do	13½	16	9	16	17	71½	10,14
A. Leblanc, do	do	15	20	7	12	17	71	
VERNER AGR. SOCIETY.								
Judge—W. H. Davis, Ivy. R.R. 7.								
S. Lawrence, Verner	Banner..........	16	20	8	15	20	79	2
D. Lacosse, do R.R. 1....	do	14½	18	8	18	20	78½	15
Albert Gagnon do do	O. A. C. 72......	16	19	8	14	21	78	2
J. L. Sylvester, do R.R. 2....	do	16	18	8	15	20	77	4,2
Anthenasse Gagnon, Verner, R.R. 1	Banner..........	14½	18	8	14	18	72½	2,15
A. Sylvestre, Verner	O. A. C. 72......	16	17	5	12	20	70	2
NORFOLK.								
COURTLAND AGR. SOCIETY.								
Judge—G. A. Williams. Guelph.								
Geo. B. Ryan, Courtland	O. A. C. 72......	17¾	23¾	9¾	18½	22¼	92	
A. Cowan. do	do	17¾	21¾	9½	18	23¾	90¾	
Jacob Nunn, do	....	17½	22½	8½	18	22½	89	
V. McDonald, Tillsonburg. R.R.4	Banner..........	17¼	22	7	18½	21½	86¼	12
J. T. Simmons & Son, Courtland	O. A. C..........	18¼	22½	9¾	13½	21½	85½	
J. F. Robinson, do	Banner..........	16½	22	7½	18	21	85	
W. E. Sandham, Tillsonburg. R.R.	O. A. C. 72......	16½	21½	7½	18	20½	84	12
Chas. Birdsall, Courtland, R.R. 1	do	16¼	23½	7	16	19¾	82½	15
J. C. Byerlay, do R.R. 2	do	15	21½	8	18½	19	82	12
I. Atkinson, Courtland	....	16	18	7½	18	22¼	81¾	5,12
C. W. Graydon, Delhi. R.R. 3..	O. A. C. 72.......	16	19	8	16	22½	81½	14,12
P. Mabee, Tillsonburg, R.R. ...	do	15½	18	7	17	20	77½	14,13
NORFOLK AGR. SOCIETY.								
Judge—G. A. Williams. Guelph.								
P. Potts, Simcoe, R.R. 3....	O. A. C. 72.......	17¾	23½	9	19½	23¼	93	12
W. H. Mason, do R.R. 4....	do	16½	24	8¾	19½	23	91¾	12
Wm. Mason, do do	do	19	23½	8½	16¾	23	90¾	12

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OATS.

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NORFOLK.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
NORFOLK AGR. SOCIETY.—*Con.*								
F. Farrell, Waterford, R.R. 4..	O. A. C..........	18½	24	8¾	16	21	88¼	
Thos. Leedham, St. Williams. R.R. 1	O. A. C. 72.......	15¾	23	9	18	21¾	87½	14
E. Mason, Simcoe, R.R. 4....	Scottish Chief...	16¼	24	8	17½	23	86¾	8
Andrew Smith, do R.R. 2....	O. A. C..........	18½	22	8	16	21	85½	8
Geo. Erwin, do R.R. 4....	Banner..........	17¾	19	7	18	22	83¾	
D. Woolley, do do	do	16½	22	8	15	21¼	82¾	
F. D. Freeman, Lynnville, R.R.1	do	16¼	21½	8¼	16½	20	82¼	
NORTHUMBERLAND.								
SEYMOUR AGR. SOCIETY.								
Judge—D. J. Gibson, Bowmanville, R.R. 4.								
W. Rannie, Campbellford, R.R. 3	Imperial	17	22	8	19	22	88	10
M. H. West, do	O. A. C. 72.......	17	22	8	19	21	87	10
H. McKelvie, do	Banner..........	17	20	8	19	22	86	10,11,15
Robt. Innis. do	White Wave.....	14½	23	9	18	21	85½	10
C. Bonnycastle, do	O. A. C. 72.......	14	21	9	19	21½	84½	10
G. Curle, do	do	16½	20	8	17	22	83½	2
Alex. Hume, do	do	16	19	8	19	21	83	10,15
Chas. Bedford, do	Sheffield Standard	16	20	8	16	22	82	12
Thos. Dunham, do R.R. 4	O. A. C. 72......	14½	20	9	18	20	81½	10
Jas. L. Forestell, do R.R. 1	do	16	15	8	19	20½	78½	10,15
W. W. Whitton, do R.R.	Mammoth Cluster	14	18	7	18	20½	77½	10,15,1
Wm. Locke, do do	O. A. C. 72......	15	15	7	17	21	75	2,10,15
WOOLER AGR. SOCIETY.								
Judge—Jno. Gardhouse, Weston								
E. McMasters, Hilton, R.R.	O. A. C. 72......	18½	23	7	17	22½	88	15
L. Dalmas, Wooler	Alaska..........	18	20	8	18	22	86	1
H. Wessels, do	Abundance......	15	23	8	18	21	85	1,15
W. Ruttan. do	Banner..........	17	22	7	12	21	79	15
Bert. Vansicklin, Trenton	O. A. C. 72......	15	18	8	18	17	76	2
W. McColl, Wooler	Banner..........	16	14	7	17	21	75	1
E. Scott, do	do	15	15	8	17	19	74	2,15
D. Teal, do	O. A. C. 72......	18½	14	9	10	22	73½	2,1
OXFORD.								
E. NISSOURI AGR. SOCIETY								
Judge—W. P. Hinman, Toronto.								
Mercer Bros., Thamesford ...	O. A. C. 72......	19¼	24	9	19¾	24½	96½	
F. G. Seaton, Lakeside	do	19½	23	10	20	23½	96	
Jno. Bradshaw, Thamesford ..	do	19	23½	9½	19¾	23¾	95½	

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OATS.

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OXFORD.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
E. NISSOURI AGR. SOCIETY.—*Con.*								
Jno. C. Henderson, Lakeside. R.R. 2	Banner	18¾	22	10	20	24½	95¼	
Geo. R. Matheson, Harrington West	do	18½	24	9½	19	24	95	
D. R. Calder, Lakeside, R.R. 2	O. A. C. 72	19	22	10	19¾	24	94¾	15
A. Whetstone, do	Banner	19	23	10	19	23½	94½	15
D. Thompson, Thamesford, R.R. 2	do	19½	22	10	17	24¾	93¼	12
Wm. H. Mead, Lakeside	O. A. C. 72	19¼	20	9¾	20	24	93	12
M. B. Bent, Thamesford, R.R. 2	do	18¼	22	9¼	20	23	92½	10
T. R. McGee, Lakeside, R.R. 2	Banner	18¾	20	9¾	20	22½	91	15
W. I. Hogg, Thamesford, R.R. 2	do	17½	10	9	20	23	79½	2
D. Quinn, do do	do	18	10	9	19¾	22	78¾	2
SOUTH NORWICH AGR. SOCIETY								
Judge—L. Pansley, St. Thomas, R.R. 2.								
L. Mason, Otterville, R.R. 1		18½	24½	9	18	23	93	
Wm. Deen, do R.R. 1		17	22	8	18	23	88	15
Ed. Pennington, do R.R. 1	O. A. C.	18	22½	7	18	22	87½	
Joe McIlhone, do R.R. 1		16½	22½	8	17	21	85	
J. D. Monk, do R.R. 1		15½	22	7½	19	20	84	
M. H. Healey, Springford, R.R. 2		16	23	8	14	22½	83½	15
Martin Healey, do do		15½	22½	7½	15	22½	83	15
A. Hanson, Otterville, R.R. 2	Banner	14½	18	7	18	21	78½	5
Thos. Pearce, Cornell	O. A. C.	15	17	8	17	18	75	
F. Walters, Otterville, R.R. 2		15	15	8	18	17	73	14
Jas. Blow, Springford, R.R. 1	O. A. C.	14	15	7½	17½	16	70	15
TILLSONBURG AND DEREHAM AGR. SOCIETY.								
Judge—L. Pansley, St. Thomas, R.R. 2.								
E. Whaley, Brownville	Banner	17½	23½	9	19½	23½	93	15
A. Turnbull, Ostrander	do	17	23	8	19	23½	90½	
Thos. G. Nant, Brownsville	Am. Banner	16	23	7½	19	23	88½	15
P. Minns, Tillsonburg	Banner	16	23	7	18	22½	86½	
J. D. McAlpine, do	Abundance	14½	23	8	17½	22	85	
E. J. Pearce, Mt. Elgin	Banner	13½	22½	8	17	20½	81½	15,12
A. Scott, Tillsonburg	O. A. C.	13½	20	8½	17	20½	79½	15
F. Fewster, do	Banner	13½	20	8	16	20½	78	15
H. Allin, Ostrander	Abundance	12½	20	7½	17	20	77	
O. H. Pettman, Tillsonburg R.R. 3	Banner	14	19	7	16	20	76	15
V. Pettman, Tillsonburg	do	13½	19	6	17	19	74½	

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OATS.

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PARRY SOUND.		(20)	(25)	(10)	(20)	(25)	(100)	
ARMOUR, RYERSON, AND BURK'S FALLS AGR. SOCIETY.								
Judge—J. B. Kaye, Bracebridge.								
Jos. Bell, Burk's Falls	O. A. C. 72.......	18	24	9	19	22½	92½	17
Wm. Chalmers, do	Mammoth Cluster.	18	24	9	19	22	92	15
Jas. Webber, do	Reg. Banner.....	18	24	8	18	22	90	15
Jno. T. Smith, Stirling Falls ..	Early Yielder....	17½	24	9	18	22	88½	§15
H. Doherty, Midlothian	Mammoth Cluster.	17	23	9	18	21	88	15,17
Herman Smith, Burk's Falls ..	O. A. C. 72.......	18	22	8	18	21½	87½	15
Jas. Thompson, do	Mammoth Cluster.	17	22	9	18	21	87	
Herb. Bentley, do	do .	16	23	8	18	21½	86½	
E. Jenkins, do	O. A. C. 72.......	17½	21	9	18	21	86½	15,17
Samuel Edwards, do	Mammoth Cluster.	17	22	9	18	20	86	15
Robt. Andrews, do	do ..	16	22	9	18	21	86	15
Geo. Taylor, Starrat	Golden Ray......	17½	22	9	17	22	85½	§
Chas. Alexander, do	Rennie's E. Yielder........	17	22	8½	18½	20	84§	
F. M. Wilson, do	Banner..........	17	21	8	18	19	83	4
Jas. Marshall, do	O. A. C. 72.......	17	20	8	16	20	81	
Wm. Near, do	Mammoth Cluster.	14	20	8	19	19½	80½	15
D. Mitchell, do	Rennie's E. Yielder........	17	18	8	18	21	80§	2.15
Herb. Simpson, Midlothian	Mammoth Cluster.	15½	18	8	15	20	26½	15,17
D. Etty, Burk's Falls	Banner..........	16	20	6	14	19	75	17
CHRISTIE AGR. SOCIETY.								
Judge—H. L. Goltz, Bardsville.								
W. H. Burns, Orville	O. A. C. 72.......	16	23	8	18½	22	87½	13
Jas. White, do	do	17	22	9	17	22	87	
M. H. Harker, do	do	16	22	8	18½	22	86½	10
Jno. Lawson, Maple Lake Stn...	Am. Banner.....	17	21	7½	18	22½	86	4
J. A. Morrison, do do ..	O. A. C. 72......	15½	23	8	19	20	85½	
Edward White, Orrville	Garton's Abund'ce	16½	22	8½	16	22	85	
Jos. Hannon, do	Golden Abund'ce. .	15	22	8	17	22	84	1
Geo. Culp, do	O. A. C. 72.......	16	19	8	18	20	81	1
D. Sword & Son, Maple Lake Stn.	do	16	19	7	17	21	80	10,1
A. E. Healey, Orrville	Golden Rain.....	14	20	6	18	19	75§	9
Earl Jones, Hurdville	Banner..........	14	17	7	16	21	75	4
LORING AGR. SOCIETY.								
Judge—R. J. Gordon Hill, Hillside.								
Jno. Haggart, Loring	Banner..........	15	25	9	20	23	92	
Jno. Smith, do	White Wave......	17	24	9	18	23½	89½	§
Jas. R. Bain, do	do	16½	24	9½	18	23	89§	
John H. Bain, do	do	16	23	9	18	23½	87½	§
R. Yeo, do	O. A. C. 72......	16	20	9	19	23	87	
R. Thompson, do	Banner....	17	21	8½	17	23	86½	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PARRY SOUND.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
LORING AGR. SOCIETY.—*Con.*								
Rudolph Bain, Loring	White Wave	14½	23	9	18	23½	86§	
Donald Smith, do	Mammoth Cluster	16	23	8½	17	21	85½	
Jno. A. Brooks, do	do	16½	19	8	16	23	82½	15
John Bain, do	White Wave	16	19	8	18	22½	81½	§15
R. Lampkin, do	do	15½	20	7	20	20	80½	§
A. Richardson, Spring Creek	do	15	20	8	17	21	79§	15
Wm. Robertson, do	O. A. C. 72	13	17	8	18	21	77	15
Jas. Smith, Loring	Mammoth Cluster	13½	19	8	15	21	76½	10
MACHAR AGR. SOCIETY.								
Judge—Robt. Murphy, Alliston								
Thos. Bottomley, South River	O. A. C. 72	16½	24	7½	19	21	88	
Jas. Hawthorn, Midford	do	17½	19	9	19	22	86½	2
W. Hanson, South River	Banner	16½	24	7½	17	21	86	
Jos. McGirr, do	do	15½	24½	8	18	19½	85½	
J. S. Cole, do	O. A. C. 72	17	19	9	19	21	85	10
W. W. Snow, do	Imp. Am. Banner	17½	23	8	16	20	84½	
Jos. Wilson, do	O. A. C. 72	16½	24	7½	15	21	84	
E. Thomas, do	A. E. I.	16	19	9	18	21	81§	4
A. McKee, do	Ocean Wave	16	20	8	16	21	79§	10
Robt. Carter, do	Pioneer	16	19	8	16	21	78§	15
S. Scarlett, do	O. A. C. 72	17	15	8	16	21	77	10,15
A. R. Hearn, do	Pioneer	15½	18	8	17	19	75½	§1
F. J. Hearn, do	do	15½	19	7	16	19	74½	§
W. J. Unger, do	Mammoth Cluster	14½	17	7	14	19	72½	10,15
MAGNETAWAN AGR. SOCIETY.								
Judge—Geo. McKague, Woodville, R.R. 4.								
J. Wurm, Port Carman	Banner	17½	24	9	19	22½	92	
Wm. Keppy, Spence	O. A. C. 72	17	24	9	19	22	91	15
C. Miller, Magnetawan	do	17	23	9½	19	21½	90	15
Wm. Heimbecker, do	Mammoth Cluster	15½	24	8½	18	21	87	15
A. Dauncey, Port Anson	Sterling	17½	22	9	18	22	86½	§10.15
Jas. Stewart, Magnetawan	Mammoth Cluster	17	21	8	18	21½	85½	15
A. Elliott, do	do	17	22	7	15	22½	83½	15
A. H. McLaughlin, do	do	18	18	9	16	22	83	15,11,2
Wm. Weeks, Port Carman	do	17½	20	8	15	22	82½	15,2
J. J. Irwin, Magnetawan	do	15½	20	8	18	20	81½	15,2
McKELLAR TP. AGR. SOCIETY.								
Judge—H. L. Goltz, Bardsville.								
Wm. E. Taylor, McKellar	O. A. C. 72	17	21	8	19	22½	87½	5,9
Thos. Moffatt, do	do	16	21	8	18	22	85	
Wm. H. Moffatt, do	do	16	21	7½	18	22	84½	
E. Buchner, Hurdville	do	16½	21	8	17	21½	84	10
W. F. Tait, McKellar	Mammoth Cluster	16	22	7	16	22	83	
C. J. McKeown, do	O. A. C. 72	15½	22	7	18	20	82½	10

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PARRY SOUND.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
McKELLAR TWP. AGR. SOCIETY.—*Continued.*								
Jas. E. Taylor, McKellar	O. A. C. 72	15	22	6	19½	19½	82	
Wm. Watkins, do	Mammoth Cluster	16	22	7	16	20½	81½	
Jno. Junch, Sr. do	do	16½	17	9	17	21½	81	
Jos. H. Ball, do	Yellow Russian	14	20	6	19	20	79	4
W. H. Moore, do	O. A. C. 72	14	19	8	16	21½	78½	1.4
Edward Moffatt, do	Sterling	15	20	7	17	21	78§	4
M. Whitmell, do	O. A. C. 72	12½	22	7	16	19	76½	
Albert Moffatt, do	Early Yielder	14	18	8	16	22	76§	
PERRY AGR. SOCIETY.								
Judge—J. B. Kaye, Bracebridge.								
H. Libby, Fern Glen	O. A. C. 72	17	24	9	19	21	90	17
R. Roberts, Emsdale	Rennie's E. Yielder	17	24	9	19	21	88§	15
A. Jenkins, do	Mammoth Cluster	17	23	9	18	20	87	15
M. Austin, Fern Glen	Banner	17	23	8	18	20	86	
Chas. White, Emsdale	Mammoth Cluster	15	22	9	18	18	82	15
Jos. Irwin, do Box 29	Banner	16	20½	8	18	18	80½	
Wm. Geo. Leigh, Scotia Jct.	Mammoth Cluster	13	24	9	18	16	80	15
Wm. Warsfold, Emsdale	Banner	15	21	8	18	16	78	15,17
T. E. Rawley, do Box 29	Bumper King	15	20	8½	18	16	75½	§
Chas. T. Hayward, do	O. A. C. No. 3	14	20	9	16	16	73§	15,17
Chas. T. Rose, do	Granary Filler	12	20	8	18	14	72	15
POWASSAN AGR. SOCIETY.								
Judge—R. J. Gordon Hills, Hillside.								
D. Groff, Powassan, R.R. 4	Imperial	18	25	9	20	23	93§	
Jos. Alston, do	O. A. C. 72	18½	23	9½	19	22½	92½	
L. A. Purdon, do	Banner	16	23	9	20	24	92	
Arthur Purdon, do R.R. 2	do	18	20	10	18	25	91	
H. Paull, do R.R. 2	O. A. C. 72	17	23	8½	19	23	90½	
E. J. Purdon, do	O. A. C. 72	18	23	8	19	22	90	
D. McIntyre, do R.R. 1	do	18½	24	8	16	23	89½	
A. Gougeon, do R.R. 2	Granary Filler	17½	24	5	20	22½	89	
L. Purdon, do R.R. 2	Banner	17½	22	8	18	22	87½	
Jno. Hogen, do Box 134	do	17	15	8	20	23	83	15
Wm. Bartram, do	do	15½	24	5	15	22	81½	
Jas. Oldfield, do	Newmarket	14½	20	5	18	21	76½	§15
Geo. Oldfield, do	O. A. C. 72	15	18	6	16	21	76	10.15
ROSSEAU AGR. SOCIETY.								
Judge—Wilson Black, Stroud.								
Alex. Crawford, Sr., Rosseau	O. A. C. 72	16½	22	8	19½	20	86	17
Jno. McCans, do	do	16½	21	8	19½	20	85	17
F. A. Clubbe, do	do	15	22	8	19	20	84	15
E. J. Sirett, do	do	16	20	8	18	20	82	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

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PARRY SOUND.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
ROSSEAU AGR. SOCIETY.—*Con.*								
Samuel Kettle, Jr., Maple Lake Station	O. A. C. 72	15	19½	8	18	18½	79	2,15,13
W. T. Cubitt. Hekkla	Gold Rain	14½	20	8	18	18½	77§	4
Geo. J. Lambert. do	do	15	18½	7	18	17½	74§	2,15
N. Asgeinson. do	Banner	16	12	7	18	20	73	15
R. B. Mahon, Rosseau	Gold Rain	13½	20	7	16	17½	72§	
Wm. Fry, Rosseau Falls	do	14½	20	6	16	16½	71§	13
G. Grenke, Hekkla	O. A. C. 72	13	15	7	18	17	70	15,2,14
STRONG AGR. SOCIETY.								
Judge—R. Murphy. Alliston.								
Jas. Prior, Sundridge	O. A. C. 72	18	24	8	19	23	92	
Cottrell Bros., do	do	17½	22	9½	19	22	90	
J. Willoughby, do	Mammoth Cluster	17	24	7½	18	19	85½	
Samuel McGirr, do	O. A. C. 72	17	23	8	17	20	85	
Geo. Frost. do	do	15	24	7½	19	18½	84	
J. Batterick. do	Irish	16½	19	9	19	20	81½	§
Thos. Hodgson. Pearceley	O. A. C. 72	16	17	9	19	20	81	
F. W. Hannaford, Sundridge	do	16	19	7	18	20½	80½	
John Paget, do	do	16	18	8	18	20	80	
Jno. Minorgan, do	do	14	15	7½	18	18	72½	
Geo. Butson, do	do	14	15	9	15	19	72	
UNITED TPS. AGR. SOCIETY.								
Judge—Geo. McKague. Woodville.								
W. Quinn, McKellar	Mammoth Cluster	18½	24	6	19	22½	90	15
Wm. Hamilton, Dunchurch	O. A. C. 72	16½	24	9½	19	20½	89½	15
David Crisp, do	do	17	23	9	19	21	89	
Jno. A. Labrash. Maple Island	do	16	23	9	19	21	88	6
R. J. Moore, Dunchurch	Reg. Banner	18	19½	9	19	22	87½	10.15
Robt. Farley, do	O. A. C. 72	16	22½	9½	19	20	87	15
W. Todd. Maple Island	do	16	22	9	19	20	86	15,10
Samuel Irwin. McKellar	Mammoth Cluster	18	19½	8	18	22	85½	15,6
W. T. Lundy. Dunchurch	Banner	19	16	9	19	22	85	1
Alex. Rae. do	O. A. C. 72	15	24	8	18	20	85	15
Jas. W. Labrash, Maple Islan	do	18½	21	6	19	20	84½	10
Wm. J. Dobson, Dunchurch	Banner	16	19½	9½	19	20	84	1.10.15
PEEL.								
ALBION AND BOLTON AGR. SOCIETY.								
Judge—F. A. Clark, Gormley R.R. 2.								
Russell Lee, Bolton, R.R. 4	O. A. C.	18¼	24	9	19	23¾	94	15
E. Robinson, do	Ligowa	16	23	6	15	22	80§	
Albert Robinson, do R.R. 1	Bumper King	15	21	6	14	20	74§	1,15
Bert. Bishop. do		16	13	9	16	21½	73½	§1,15
E. Armstrong. do	Banner	15½	8	8	19	21	71½	1,15.11,2

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OATS.

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PEEL.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
PEEL AGR. SOCIETY.								
Judge—R. Medd, Sr., Auburn, R.R. 3.								
Jas. R. Fallis, Brampton	Abundance	20	17	8	20	25	90	
T. C. Fraser, Streetsville, R.R. 3	O. A. C. 72	18	25	10	20	16	89	
W. Baldock, Malton, R.R. 2	do	17	20	10	19	22	88	
Lonsdell Bros., Brampton, R.R.3	do	20	12	10	20	25	87	
Elias Snell, do do	do	15	20	7	18	25	85	
W. G. Witherspoon, Woodbridge, R.R. 1.	do	16	20	5	20	23	84	
Fred Ellis, Brampton, R.R. 6	Mammoth Cluster	16	16	6	20	22	80	
J. Fletcher, Woodbridge		14	15	6	20	23½	76½	§
F. C. Brown, Norval, R.R. 2	O. A. C. 72	15	15	6	17	20	73	
W. J. Fraser, Streetsville, R.R. 3	do	14	10	10	18	19	71	
TORONTO TP. AGR. SOCIETY.								
Judge—F. A. Clarke, Gormley, R.R. 2.								
Jno. Weylie, Streetsville, R.R. 3	Yel. Russian	18½	24½	9	19½	22¼	93¾	
Jas. B. Ross, Meadowvale	O. A. C.	16	13	9	19	21	78	10,2
Jas. D. Steen, do	do	16	12	7	19	20½	74½	2,10.15,14
R. Kay, Erindale	O. A. C.	12	21	7	15	18	73	15
PERTH.								
ELMA AGR. SOCIETY.								
Judge—Jas. Boyd, Markham.								
Jas. S. Cowan, Monkton, R.R. 1	Banner	16	24	8	17	22½	87½	
Henderson Robb, Atwood, R.R. 2	Century	16	23	8	18	23	86§	14
Wm. Donaldson, do R.R. 4	Granary Filler	16	22	8	16	23½	85½	12,1
A. Robb & Son, do R.R. 2	O. A. C. 72	15½	23	6	18	22½	85	15
J. W. Boyd, do	do	15½	23	7	16	23	84½	15,14
Jno. M. Ovans, do R.R. 3	do	16	16	8	19	23½	82½	2
W. A. Dickson, do R.R. 2	do	15	17	8½	18	23	81½	2,14,4,15
John S. Cowan, do R.R. 2	Diamond King	15	21	8	15	22	79§	2,15
W. S. Shearer, Listowel	O. A. C. 72	17	14	6	19	22½	78½	2,1,15
Jno. Seelhoff, Atwood, R.R. 2	Diamond King	16	19	5	18	21½	77½	§2,15
Chester Little, do do	do	15½	16	7	17	22	75½	§2,1
Wm. Little, do do	Canadian Prize	14	20	6	16	21	75§	2,15
Jno. Ballantyne, do R.R. 4	Elmhurst	17½	10	8	16	24	73½	§2,1,15
R. J. Coghlin, do R.R. 1	Banner	14¼	9	8	17	23	71½	2,15
A. Stephenson, Listowel	do	15	9	9	16	22	71	1,2,15
FULLARTON, LOGAN AND HIBBERT AGR. SOCIETY.								
Judge—R. Medd, Sr., Auburn, R.R. 3.								
Amos Doupe, Kirkton	Banner	15	25	8	17	23	88	
D. Norris, Dublin	O. A. C.	16	25	6	20	20	87	
E. Docking, do R.R. 2	do	19	25	8	10	23	85	

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OATS.

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PERTH.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
FULLARTON, LOGAN AND HIBBERT AGR. SOCIETY.—*Continued.*								
R. Birchell, Dublin, R.R. 2	Banner..........	16	18	6	20	21	81	2
H. R. Greenwood, Mitchell	do	18	15	8	16	22	79	2
M. Haggarty, Bornholm	O. A. C..........	15	18	8	16	21	78	2,10
G. Leonhardt, do	Banner..........	12	16	7	20	22	77	2
G. Hillbrecht, do R.R. 1	do	12	18	7	18	21	76	
S. Cole, Russeldale	Yel. Russian.....	15	10	9	20	21	75	1
E. J. Thiel, Mitchell, R.R. 3....	O. A. C..........	14	10	6	18	24	72	2
KIRKTON AGR. SOCIETY.								
Judge—G. A. Williams, Guelph.								
David Roger, St. Mary's, R.R. 1	Rennie's E. Yielder........	18½	19½	9	18½	23	86½	§1
Wm. Urquhart, do do	Banner..........	18¼	18	8¾	18½	22	85½	
Wm. Harding, do do	do	17½	17	9	18½	21¾	83¾	
Chas. Atkinson, do R.R. 6	Yel. Russian.....	16	19	8	19	21¼	83¼	1
Wm. Blacker, do R.R. 1	Gold Drop.......	17	18	8½	16½	22½	80½	§1
Jas. More, do do	Banner..........	17¾	10	8	17	23	75¾	
W. Shier, Woodham	Sheffield Standard	18	10	9	18	22	75§	2,1
M. Brethour, St. Mary's, R.R. 6	O. A. C. 72.......	16½	10	9½	17½	20¾	74¼	1
A. Bickell, do R.R. 1	Banner..........	16	10	7	18	20	71	
STRATFORD AGR. SOCIETY.								
Judge—Jas. Boyd, Markham.								
Jno. Frasier, Stratford, R.R...	O. A. C. 72......	17½	22	8	20	23	90½	2,15
Geo. Gibb, do R.R. 3	Banner..........	17	23	8½	18	23	89½	15,14
Alex. Horne, Gadshill, R.R. 1..	O. A. C. 72......	15½	22	9	19	22	87½	15,12
Jas. Bradley, Stratford, R.R. 1	Yel. Russian.....	16½	21	8	19	22	86½	15,12
Edward Zinn, do do	O. A. C. 72......	17	20	8	18½	22½	86	2,14,12
J. Schmidt, do do	Danish Island....	15	23	8½	18½	22	85§	15
Wm. H. Douglas, St. Paul's, R.R. 2......................	Yellow Russian...	16	19	8	18	22½	83½	2,15
Herman Cook, Stratford, R.R. 1	Banner..........	15½	18½	7½	18	22	81½	2,15
Jacob Litt, Sebringville	Yellow Russian...	17	15	8	17	23½	80½	2,15
Jno. C. Cook, Stratford, R.R. 1	Banner..........	14	18	8	19	21	80	2,15
M. Wilhelm, do do	White King......	15	16	9	19	22	79½	§2,15,10
N. Monteith, do R.R. 2	O. A. C. 72.......	17	16	8	15	23	79	1,2,15
W. W. Ballantyne, do R.R. 3	do	16	12	8	18	24	78	1,15
D. M. Ballantyne, do R.R. 3	Yellow Russian...	17	11	8	18	23	77	2,15
F. Dunsmore, do R.R. 2	Abundance.......	15½	14	8	17	22	76½	1,15
W. T. Wood, St. Paul's, R.R. 2	Yellow Russian...	15½	15	8½	15	22	76	2,15
C. W. Dunsmore & Son, St Paul's, R.R. 2	Banner..........	17	9	8	18	23	75	2,15,14
H. Stewart, St. Paul's, R.R. 2 ..	do	16½	10	9	16	23	74½	2,1,15
H. Dunsmore, Stratford, R.R. 2	Elmhurst........	17	9	9	15	23	71§	2,15,14

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OATS.

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PETERBOROUGH.		(20)	(25)	(10)	(20)	(25)	(100)	
EAST PETERBOROUGH AGR. SOCIETY.								
Judge—D. J. Gibson, Bowmanville, R.R. 4.								
Thompson Bros., Indian River..	Banner..........	17	23	9	19	22½	90½	.15
W. G. Barrie, Norwood, R.R. 2	O. A. C. 72.......	17½	21	8	19	22	87½	5,15
R. E. Birdsall, Birdsall	do	16	22	9	17	22	86	10,15
Wm. Knox, Indian River	Abundance.......	17½	20	8	17	23	85½	2,15
F. J. Greenback, Norwood	Mammoth Cluster	18	21	9	15	22	85	4,15
Jno. English, do	White Wave......	16	18	9	18	22½	83½	4,2
R. A. Scott, do R.R. 2	Banner..........	16	20	8	17	22	83	10
Noah King, Havelock, R.R. 2 ..	O. A. C. 72.......	14	22	9	16	21	82	
H. Cuthbertson, Norwood	Am. Banner......	17	15	8	18	23	81	4,11,2,10
A. Humphries, Hastings, R.R. 3	White Wave......	14½	20	6	18	21	79½	15,2
P. M. Grover, Norwood	O. A. C. 72......	17	12	9	17	22	77	1,15,4,10,11
Geo. A. Barrie, Birdsall	do	17½	10	9	17	22	75½	2,10 1
W. C. Brackenridge, Westwood	do	14½	16	8	16	20	74½	10,5,15,3
G. A. L. Humphries, Hastings, R.R. 3	do	14	15	9	15	21	74	4,10
LAKEFIELD AGR. SOCIETY.								
Judge—D. English, Burketon, R.R. 3.								
B. I. Dench, Lakefield, R.R. 4 ..	O. A. C. 72.......	19	22	9	18	23	91	2
G. Mann, Peterborough, R.R. 4	do	20	21	9	17	23	90	12.11,4
G. A. Graham, Lakefield, R.R. 2	do	20	20	7	17	22	86	15
D. Garvey, do R.R. 1	Banner..........	18½	15	9	16	22½	81	1,12,15
H. Mathews, do R.R. 4	O. A. C. 72.......	18½	14	7	18	22	79½	2,1,15,11
J. E. Galvin, do	do	16	18	7	18	20	79	10,7,11
Thos. E. Whibbs, do R.R. 4	Banner..........	18	16½	7	15	20	76½	1
W. Preston, do R.R. 3	do	16	16	7	16	21	76	10,1
H. J. Abbott, do R.R. 2	O. A. C. 72.......	15	14	8	18	19	74	2,10,15
OTONABEE AGR. SOCIETY.								
Judge—D. English, Burketon, R.R. 3.								
S. McIntyre, Keene, R.R. 2	Abundance.......	17	23	9	18	23	90	
Jno. E. Manley, Peterboro, R.R. 8	do	17	20	10	19	23	89	10,2,15
W. A. Drummond, do R.R. 8	Ligowa..........	17½	22	9	18	22	86½	§1
Herb. McFarlane, do R.R. 8	O. A. C. 72.....	17	20	8	18	23	86	12,2
S. M. Comrie, do R.R. 8	Abundance.......	15	20	7	18	22	82	10,15
Alex. Wood, Keene, R.R. 1	20th Century....	16½	20	7	18	22	81½	§12,15
C. C. Nelson, Peterboro, R.R. 8	Danish Swede...	17	17	9	18	22	81§	10,1
H. Weir, Lang	Giant Prolific...	17	22	5	16	22	80§	12
W. A. Nelson, Keene, R.R. 1 ..	Danish Swede...	16	20	7	16	21½	78½	§10,12
R. E. Drummond, Peterboro, R.R. 8	Siberian.........	17	17	7	17	22	78§	2,12,15
M. O'Keefe, Keene, R.R. 1	Banner..........	16½	18	8	15	20	77½	12
R. A. Nelson, do R.R. 1	Danish Swede...	14	20	8	18	19	77§	12
F. A. Eason, do R.R. 1	do ...	14	18	8	18	19	75§	10,12,15
Wm. Bishop, do R.R. 1	Wide Awake.....	15	17	9	16	19	74§	15,1.10

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PETERBOROUGH.—*Con.*		(20)	(25)	(10)	(20)	(25)	(100)	
PETERBOROUGH IND. AGR. SOCIETY.								
Judge—W. F. B. Switzer, Streetsville.								
A. B. Mann, Peterborough, R.R. 4	O. A. C. 72.......	18	22½	9	19	23½	92	15
Chas. Westlake, do R.R. 2	Northland.......	18	23	9	18	22	90	15
Wm. Steinkrauss, do R.R. 8	New Century.....	18	23	8	17½	22	88½	
J. D. Fowler, do R.R. 4	O. A. C. 72......	19	22½	8	18	20½	88	
W. A. Roseborough, do R.R. 4	Sensation........	17	22	9	17½	22	87½	
H. Webber, do R.R. 3	O. A. C. 72.......	17	22	7½	18	22½	87	15
Sam'l. Dixon, do	Sterling..........	17	22½	7	18	22	86½	15
R. T. Lillico, do	O. A. C. 72.......	19	10	9	20	24	82	
R. A. Garbutt, do R.R. 4	White...........	16	15	8	18	20	77	2,15
Gordon Mann, do	do	14	23	7	18	14	76	15
Robt. Fowler, do	....	17	10	9	16	21	73	4,1,15,2
PRESCOTT.								
ALFRED AGR. SOCIETY.								
Judge—W. V. Kidd, Woito, R.R. 1.								
D. Charbonneau, Alfred	Banner..........	20	24	10	20	25	99	
Alex. Charbonneau, do	do	19	24	10	20	25	98	
D. Parisien, do	do	19	23	8	19	24	93	15
E. Parisien, do	Washington......	17	20	9	19½	24	89½	4,15
Jos. Robillard, do	Banner..........	17	22	9	18	23	89	
P. Gow, Plantagenet	do	19	20	8	19	22	88	5
Sam'l Parisien, Alfred	do	17	19	8	19	24	87	2,4
Oscar Parisien, do	do	18	20	6	18½	24	86½	2,4
M. Leroux, Plantagenet	do	16	19	9	18	24	86	10,2
F. Prevost, do	do	18	22	8	17	20½	85½	
F. Daoust, Alfred......	do	17	20	8	18	22	85	
J. A. Cadieux, do	do	17	18	8	18	23½	84½	2,15
O. Gratton, do	Manitoba........	15	21	9	17	22	84	
Jos. Parisien, do	Washington......	15	20	8	17	21	81	4
A. Landriault, do	Banner..........	16	20	7	15	22½	80½	15,2
Arthur Daoust, do	Washington......	15	20	6	18	19	78	15
O. Sauve, do	Banner..........	16	17	6	16	22	77	2,15
H. Langevin, do	do	15	11	9	15	24	74	4,12,2
F. X. Cadieux, L'Orignal, R.R. 1	do	14	20	8	15	16	73	
J. Bte. Rouleau, Alfred	do	14	15	7	15	19	70	
PRINCE EDWARD.								
AMELIASBURG AGR. SOCIETY.								
Judge—Jas. Boyd, Markham.								
W. J. Barber, Rossmore	Yel. Russian......	16	24	8	19	23	90	
J. R. Anderson, Mountain View	Industrial.......	17	23	8	19	22	89	
Jno. A. Walker, Rossmore	Yel. Russian.....	17½	23	6	18	22	86½	15,10
H. Young, do	do	16	20	8	18½	23	85½	1,10

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PRINCE EDWARD.—*Con.*		(20)	(25)	(10)	(20)	(25)	(100)	
AMELIASBURG AGR. SOCIETY.—*Con.*								
N. Weese, Rednersville	Banner	15½	21	8	19	21½	85	1,5
Jas. S. Wallbridge, Rossmore	Yel. Russian	14	20	8	18	21	81	1,15,10
W. H. C. Roblin, Ameliasburg	Banner	12	22	9	16	20	79	10,14
E. E. Wallbridge, Rossmore	Yel. Russian	13½	20	7	18	20	78½	1,10,15
L. Wallbridge, do	Ligowa	15½	20	7	11	21½	75	2,15
Thos. Nightingale, do	do	16	17	8	10	22	73	2,15,4,10,1
PRINCE EDWARD AGR. SOCIETY.								
Judge—Jas. Boyd, Markham.								
M. Gilbert, Demorestville, R.R. 3	Mammoth Cluster	18½	23	7	19	24½	92	15,10
B. R. Leavens, Bloomfield	O. A. C. 72	17	23½	9	19	23	91½	10,15
Morris Huff, do R.R.	do	16½	23½	9	19	22	90	15
Ed. B. Purtelle, do	do	16½	22	8	19	22½	88	10,15
Herb., McDonald, do	do	15	22	9	18½	21½	86	10,15
G. Thompson, do	do	15½	20	8	19	22	84½	15,10,2
W. Leavitt, Woodrous	Banner	17½	18	8	18½	22	84	2,15,10
W. H. Gough, Bloomfield	O A. C. 72	15	21	8	17½	22	83½	15,14,10
Peter Cave, do	do	13½	22½	8½	17	21	82½	15
A. Benson, do	Banner	15½	19	9	16	22½	82	1.14,15
SOPHIASBURG AGR. SOCIETY								
Judge—Jas. Boyd. Markham.								
E. W. Gorsline, Picton, R.R. 8	O. A. C. 72	16	24	9	19	22½	90½	10
W. Rightmyer, do R.R. 8	Banner	17½	23	7	19	23	89½	15,14
Trumbel Bros., do R.R. 8	do	15½	23	9	19	22	88½	15
Thos. Crawford, do R.R. 8	O. A. C. 72	16	20	9	18	22½	85½	15,10
F. W. C. Kent, Demorestville	do	15	20	9	19	21½	84½	4,10
U. Nelson. do	Banner	15½	19	9	18	22½	84	1,2
K. Spafford, Picton, R.R. 8	do	14	21	8	18	21½	82½	15,14,10
J. F. Werden & Son, do R.R. 8	Granary Filler	13½	20	8	18	22½	82	1,4,10,15
Chas. H. Kent, do R.R. 4	O. A. C. 72	13½	18	9	19	20	79½	15,10
W. Asa Foster, do R.R. 8	Banner	14	22	8	12	21	71	14,15
RAINY RIVER.								
ATWOOD AGR. SOCIETY								
Judge—Jno. McKay, Dryden.								
F. Gosselin, Rainy River	Gold Rain	18	22	9½	19	23	89½	2,15
D. A. McQuarrie,, do	Banner	17	20	8½	18	22	85½	2
H. J. Hodges. Sleeman	Abundance	15½	24	4	19	21	83½	
Wm. McKenzie. do	do	15	17	7	19	22	80	2
Thos. Nolan. do	Banner	15½	16	9	16	22	78½	2
A. E. Hodges. Rainy River	Abundance	14	16	7	16½	20½	74	2.1
G. Byrnes, do	Banner	15	14	8	17	19	73	2.15

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

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RAINY RIVER.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
RAINY RIVER VALLEY AGR. SOCIETY.								
Judge—J. D. McKenna, North Bay.								
W. B. Ogden, Aylesworth	Ligowa..........	16	23	8	17	21	85	
Chas. Fisher, Emo	Lincoln..........	15	23	8	17	21	84	
O. Cameron, do	O. A. C. 72.......	15	22	8	17	19	81	15
Wm. Jewell, Aylesworth	Abundance.......	15	18	9	17	21	80	15
D. Nicholson, Devlin	O. A. C. 72.......	16	17	8	18	20	79	1,2
Geo. R. Sanderson, Big Fork ..	Ligowa..........	16	15	9	17	21	78	2,15
J. E. King, Emo	Abundance.......	13	23½	8	15	18	77½	
Wm. MacMillan do	Industrial.......	16	14	8	18	21	77	1,2
Mrs. C. Larson, Aylesworth	do	16	15	8	16	21	76	2,15
F. W. Tummey, Emo	Abundance.......	16	15	8	16	20	75	1,2
RENFREW.								
ARNPRIOR AGR. SOCIETY								
Judge—J. N. Sorley. Ottawa, R.R. 1.								
N. S. Robertson, Arnprior	O. A. C. 72.......	16	24½	9½	19½	20	89½	
Jno. O'C. Havey, do	do	17	24	8½	18	21½	89	10
Jas. Havey, do	do	16	24	9	18	21	88	10
M. McLaren, do	Banner..........	17½	22	8	17	19	83½	
A. Russell, Jr., do	O. A. C. 72.......	16	23	9	15	20	83	
Wm. Young, do	Victory..........	16½	24	7	13	19	79½	
John Rafter, do	Banner..........	16	21	8	15	19	79	15
J. H. Findlay, do	do	14½	21	7	16	19	77½	
Wm. P. Dillon, do	do	15	15	8	18	20½	76½	1
F. A. Cavers, do	O. A. C. 72.......	14½	21	8	12	19	74½	4,15
COBDEN AGR. SOCIETY.								
Judge—S. G. Gourlay, Ottawa.								
Sam'l McMillan, Cobden	Banner..........	18½	24	8	20	22½	93	
W. Burns, do	do	18½	23½	8	18	22	90	
J. C. Bulmer, do	do	18	22	8½	17½	22	88	
A. Johnston, do	do	17½	23	7	17½	22	87	
Sam'l McLaren, do	do	17	22	6½	17	21½	84	
Wm. McClelland, do	do	16½	21	7½	17	20	82	
Thos. Smith, do	O. A. C.	15½	21	9	16½	19½	81½	15
Wm. McMillan, do	Banner..........	17	19	7½	16	21	80½	
Thos. Burgess, do	O. A. C.	14	19	7½	14	19	73½	
W. J. Connelly, do	Banner..........	15	18	7	14	19	73	2,5
A. Collins, do	do	15	17	6½	15½	17½	71½	

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OATS.

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RENFREW.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
NORTH RENFREW AGR. SOCIETY.								
Judge—G. W. Davidson, Kemptville.								
Alex. M. Barr, Beachburg	O. A. C. 72........	18	24	8½	18½	22	91	
G. McClelland, do	Banner..........	18	22	9	18	22½	89½	4
Jos. Keyes, Westmeath, R.R. 2	do	16½	22½	8	18½	22½	88	4
Harris Brown, Beachburg	O. A. C. 72........	16½	20	8½	18	22	85	4
Wm. Headrick, do	do	16	20	8	18	22	84	4,10,15,2
R. H. Fraser, Forester's Falls..	do	16	20	8	18	21½	83½	4
S. McClelland, Beachburg	Granary Filler...	15	20	8	18	22	83	2
A. Munroe, do	O. A. C. 72......	15	19	8	18	22	82	2,4,10
Jno. A. Brown, do	Mammoth Cluster	14½	18	7	18	22	79½	2,4
Jno. Stevenson, do	Waverley........	14	21	8½	17	21	79½	84,2
RENFREW AGR. SOCIETY.								
Judge—Geo. R. Bradley, Kars.								
Jno. F. Blane, Renfrew	O. A. C. 72......	18½	24	10	20	23½	96	10
Jas. H. Fraser, Newfield	do	19	24	9	18	22	93	12
G. MacIntyre, Renfrew	do	18½	23	8½	19	22½	91½	10,15
F. H. Johnston, do R.R. 7	do	17½	22.	8	19	21½	88	10,15
Arthur Duff, do R.R. 1	do	17½	21	8	18	22½	87	12
J. F. Gibbons, do R.R. 2	Bonanza.........	16	20	8	19	20½	83½	2,4
R. B. Leitch, do R.R. 3	Banner..........	17	17	8	18	23	83	2,1
J. M. Airth, do	do	16½	20	8	18	20	82½	10,12
N. Jamieson, do R.R. 3	do	14½	20	9	17	19½	80	
J. B. McLaren, do	O. A. C. 72.......	14½	18	8	15	20	75½	10,2.4
T. F. Barnet, do	Granary Filler...	14	16	7	18	19	74	1,10,15
RUSSELL.								
RUSSELL AGR. SOCIETY.								
Judge—J. A. McLennan, Lancaster.								
John Paul, Russell	Banner.........	18½	23	8	17	20	86½	15
H. Boyd, do	do	16	24	7	17	22	86	15
Dougal Cummings, do	do	16½	23	8	15	21½	84	4
Duncan Cummings, do	O. A. C. 72......	18	18	8	18½	21	83½	10
R. Lake, do	do	16	10	8	19½	21	74½	10,5,7
C. Pillar, do	do	16½	10	9	17	20	72½	2
E. Craig, do	Banner..........	14½	10	8½	18	20	71	2
W. A. Morrow, do	do	15	10	8	17	20	70	7,10
SIMÇOE.								
BARRIE AGR. SOCIETY.								
Judge—R. H. Crosby, Markham								
Geo. D. Coutts, Midhurst	O. A. C. 72.......	18	23	9	18½	22½	91	
R. Coutts, do	do	18	22	9	18½	23	90½	15

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OATS.

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SIMCOE.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
BARRIE AGR. SOCIETY.—*Con.*								
Thos. G. Scythes, Thornton	Lincoln	18	23	9	18	23½	89½	§15
R. N. Hickling, Barrie, R.R. 2	O. A. C. 72	17	22	9	18	20½	86½	15
Ed. Hughes, Stroud	do	17½	20	7½	19	22	86	15
A. A. Garvin, Midhurst	do	18	16	9	18	22	83	1,15
W. L. Russell, do	Granary Filler	18	15	8	18½	22½	82	1,15
W. G. Kennedy, Allandale, R.R. 2	Thousand Dollar	16½	20	9	17	20½	81§	15
J. W. Black, Stroud	O. A. C. 72	17	15	9	18	21½	80½	1,15,2
N. W. VanNorman, do	Mammoth Cluster	17½	15	9	18	20½	80	1,2
Jas. J. Orok, Midhurst	Imp. Banner	16½	15	8½	18½	21	79½	1,15
Jas. Spence, do	O. A. C. 72	18	10	8½	17	22½	76	1,15
Geo. Spence, do	do	17½	10	8½	17	21½	74½	1,2
F. J. Frankom, do	do	16½	10	9	17	21	73½	1,15
F. Frankom, do	Sensation	17½	10	8	16	21½	71§	1,15
COLDWATER AGR. SOCIETY.								
Judge—R. H. Crosby, Markham								
O. Swan, Victoria Harbor, R.R. 1	Golden Drop	18	22	9	18½	23½	89§	15
L. Archer, Lawson	Ligowa	18½	20	9½	19	23½	88½	§1,15
C. M. Robinson, Coldwater	Golden Drop	18	16	9	19½	23½	84§	2,14
C. A. Goss, do R.R. 3	O. A. C. 72	18	15	9	18	23	83	1,2
J. J. Shiels, Waubaushene, R.R. 1	do	17½	15	9	18	21	80½	1
W. J. Walker, Coldwater, R.R. 3	do	18	10	9	19	23½	79½	2,15
Jas. Mercer, do R.R. 3	Banner	17	15	8	17	20½	77½	1,15
C. Gratrix, Waubaushene, R.R. 1	O. A. C. 72	17½	10	8½	19	21½	76½	1,15
A. A. Hawke, Coldwater, R.R. 3	do	17½	10	8½	17	22½	75½	1,15.2
R. A. Walker, do R.R. 3	Banner	18	8	9	16	22½	73½	1,2
NOTTAWASAGA AND GT. NORTHERN AGR. SOCIETY.								
Judge—Geo. B. Little, Agincourt.								
Alex. Morrison, Creemore, R.R. 2	O. A. C. 72	14½	24	9	18½	19	85	
D. L. Currie, Collingwood, R.R. 1	do	15½	22	6	18	19½	81	15
David Smith, Smithdale	Banner	16½	16	8½	19	20½	80½	1,4
W. E. Hicks, Collingwood, R.R. 1	O. A. C. 72	14½	21	7½	18	18	79	
M. Gadway, Creemore, R.R. 2	Banner	17	15	8	19	19	78	1,2
G. W. Glover, Collingwood, R.R. 2	O. A. C. 72	15	15	7½	18½	20½	76½	2,15
Alex. McDermid, Batteau, R.R. 1	do	15	15	8	17	19½	74½	
SUDBURY.								
WARREN AGR. SOCIETY.								
Judge—W. H. Davis, Ivy, R.R. 7.								
E. A. Bartlett, Warren	O. A. C. 72	16	22	8	18	22	86	
W. Dixon, do	do	17	20	8	18	22	85	4
F. McDonald, do	do	16	22	7	18	21	84	10,15

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

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SUDBURY.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
WARREN AGR. SOCIETY.—*Con.*								
M. La Plante, Warren	O. A. C. 72.......	16	20	6	18	20	80	10
A. A. Montgomery, do	do	16	18	7	17	21	79	2,10
W. E. Blair, do	do	14	17	7	16	20	74	15,10
F. Anderson, Kipling	do	15	18	6	16	18	73	2
G. Nicholson, Warren	....	14½	16	7	16	19	72½	2,15
Jno. Montgomery, do	....	15	16	7	14	18	70	4,10,15
TEMISKAMING.								
CHARLTON AGR. SOCIETY								
Judge—G. A. Williams, Guelph.								
H. T. Kenny, Charlton	O. A. C. No. 3...	19½	24	9	18½	23¼	92¼	8
A. O. Atwater, do	O. A. C. 72.......	18½	24	9	18	22	91½	
N. M. Fraser, do	do	17	24	8½	17	21	87½	
S. C. Rogers, do	Banner..........	16½	21	9	19	20½	86	
H. Netherton, Brentha	do	15	24	8	18	20	85	
B. Nickerson, do	O. A. C. 72.......	16	20	8	17½	21½	83	
P. Cuddy, Costello	....	17	22½	8½	15	21	82[illegible]	
P. O'Malley, do	O. A. C. 72.......	13	24	9	17	18	81	
J. Morrisey, do	do	15	16	9	18	19½	77½	1
F. P. Hollingshead, Charlton ..	do	14½	22	6½	15	18	76	
Geo. Gillet, Brentha	Abundance......	13	18	9	16	18	74	5
F. Pommell, Charlton	Banner..........	16½	10	8	17	20½	72	2
COCHRANE AGR. SOCIETY								
Judge—G. A. Williams, Guelph.								
Fred. Foster, Cochrane	....	18½	24	9	19	23	93½	
W. Chalmers, do	....	16½	24	9	18	21	88½	
A. H. Hewson, do Box 34	....	17¼	22	9	18	20	86¼	
A. W. Golding, do	....	15	22	8½	18	22	85½	
John Foster, do	....	15½	22	7½	16½	20	81½	
G. Cowan, Clute	Abundance.......	13½	23	8	16	18	78½	
I. Phillips, Cochrane	....	15	20	7	16	19	77	
Neil McPhee, do	O. A. C. 72.......	12	20	9	17	18	76	
H. Dinelle, do	....	14	20	6	15	19	74	
J. Sowey, do	O. A. C. 72.......	10	21	8	16	17	72	
ENGLEHART AGR. SOCIETY.								
Judge—G. A. Williams, Guelph.								
R. H. Emrick, Heaslip	Banner..........	19¼	24	9	18½	23	93¾	
A. W. Skinner. Englehart	O. A. C. 72.......	18½	24	8	18½	22¾	91¾	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
TEMISKAMING.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
ENGLEHART AGR. SOCIETY.—*Con.*								
Geo. Harman, Heaslip	Banner	16½	22	9½	19	22	89	
Jno. Allen, do	Gold Rain	18	22	9½	18	22½	88§	
F. J. Tellier, do	Banner	19	20	9	17	22	87	15
Alex. Marshall, Brentha	Abundance	17	23	7	16	21	84	
W. S. Edwards, Englehart	O. A. C. 72	17	21	7½	17	19½	82	
Jas. Harman, Heaslip	Banner	17	15	9½	16	23½	81	10
Lloyd Briggs, do	O. A. C. 72	16	22	7	16½	19	80½	
S. Buckborough, Tomstown	do	15	22	8	16	19	80	
Thos. J. Sword, Heaslip	do	17	18	8½	16	20	79½	5
J. H. Keer, do	O. A. C. No. 3	15	22	9	16	19	79§	
J. H. Pullingsworth, do	O. A. C. 72	14	23	6	16	19½	78½	
H. Anderson, Englehart	Abundance	17	18	7	16	20	78	15
L. Stokell, do	O. A. C. 72	15	21	5	17	19	77	
Jos. Schaffner, Brentha	O. A. C. No. 3	15	22	8	15	18	76§	
F. Kiehna, do	Banner	15	20	7	16	17	75	
W. Pollock & Son, Englehart	do	18½	10	8	15	22	73½	
H. Schaffner, Brentha	O. A. C. 72	15	20	6	15	17	73	
A. Gehrig, do	do	13	20	7	15	17	72	
T. S. Woolings, Englehart	Banner	17½	10	8	15	21	71½	1
NEW LISKEARD AGR. SOCIETY.								
Judge—G. A. Williams, Guelph.								
A. J. Kennedy, New Liskeard	Bumper King	19¼	24	9½	19	23¾	93½	§
W. R. Peters, Uno Park	O. A. C. 72	18¼	22	9½	19	23	91¾	
G. C. Foster, do	do	17	23	8½	18½	22	89	
Hurd Bros., New Liskeard, R.R. 2	do	17	23	9	18	21	88	
Asa Jewell, do R.R. 1	Banner	18	22	7	17½	21	85½	
Geo. Walsh, do R.R. 1	Mammoth Cluster	17	22	8	17	20	84	12
R. D. Chester, do R.R. 1	O. A. C. No. 3	17	22	8	17	19½	81½	§
D. Mackey, do R.R. 1	Banner	14	21	7	17	20	79	
J. M. Gray, do R.R. 2	Abundance	15	20	9	14	18	76	
THUNDER BAY.								
WEST ALGOMA AGR. SOCIETY.								
Judge—J. D. McKenna, North Bay.								
D. J. Piper, Slate River	Banner	16	22	8	17	21	84	
Jno. McGugan, do	Abundance	16	22	7	17	21	83	
Wm. Barrie, do	Banner	14	23	8	17½	20	82½	
J. R. Hutchison, do	Gold Rain	16	21	8	16	21	82	15
E. I. Ross, Balsom St., Pt. Arthur	Banner	14	20	8	18	21	81	10.5
C. Hanna, Fort William	do	14	21	6	17	21	79	15
D. Gillespie, Slate River	do	14	18	8	17	21	78	1
G. Arnold, Fort William	do	13	16	8	18	22	77	1.10
Mrs. Ed. McGugan, Slate River	do	13	16	8	17	22	76	1
Geo. Scofield, Fort William	Garton's Abundance	13	16	8	16	21	74	1

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OATS.

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THUNDER BAY.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
WHITEFISH VALLEY AGR. SOCIETY.								
Judge—J. D. McKenna, North Bay.								
S. North, South Gillies	O. A. C. 72......	15	24	9	20	20	88	
H. Wheal, Hymers	do	16	22	9	18	22	87	9
Wm. Yeomans, do	do	16	21	8	17	22	84	
Geo. W. Hymers, do	Rennie's E. Yielder.	16	18	8	17½	23	82½	15,5
Wm. Couch, South Gillies	do ...	16	22	8	15	21	82	15
H. P. Sisson, Hymers	O. A. C. No. 3....	15	22	8	15	21	81	9
A. Parker, do	O. A. C. 72......	15	23	5	15	19	77	
Fred. Sitch, do	do	16	15	8	17	20	76	1,15,9
D. Williams, Scoble West	Early Sheffield...	15	17	8	16	19	75	1,15
Jas. Dean, Hymers	Banner..........	15	17	7	16	19	74	1,15
VICTORIA.								
ELDON AGR. SOCIETY.								
Judge—J. J. Virtue, Hampton.								
Geo. McKague, Woodville	O. A. C. 72......	17½	23	10	19	21	90½	4
A. Jamieson, do	do	16½	23	9	19	22½	90	15
Jno. A. Ross, do	Irish............	17	23	9	19	21	89	4
Geo. Whetter, do	Newmarket......	16	22	8	19	21	86	
A. B. McLeod, do	Sheffield.........	16	20	9	19	21½	85½	4,10
R. Greenaway, do	O. A. C. 72......	16	22	8	19	20	85	2
Jno. Currie, do	do	17	20	8	15	23	83	1,15.2
B. A. Wilson, do	Abundance......	16	20	7	18	21	82	2
J. P. Wilson, do	Garton's Abundance....	15	18	8	18	21	80	1
EMILY AGR. SOCIETY.								
Judge—J. J. Virtue, Hampton.								
D. H. Dick, Omemee	O. A. C. 72......	17½	24	8	19	22	90½	
Wm. Burgess, do	Banner..........	17	24½	9½	18	21	90	10
Robt. Boyd, do	do	17½	16	7	19½	23½	83½	2,1
A. McQuade, do	do	14½	23	9	16	20½	83	10,11
R. McQuade, do	do	17½	15	9	18	23	82½	1
Harold Dick, do	O. A. C. 72......	15½	18	8	19	21	81½	1,10
A. Sanderson, do	Abundance......	16½	17	8	18	21½	81	4,1
John Smith, do	Banner..........	15½	20	9	15	20½	80	2
Norman Fee, do	do	16½	24	8	10	19	77½	10
Geo. Griffin, do	O. A. C. 72......	16½	15	7	15	23	76½	1,4
FENELON AGR. SOCIETY.								
Judge—J. N. McGill. Millbrook								
Wm. Gillis, Fenelon Falls	O. A. C. 72.......	17½	24	8½	19	22½	91½	
John Lean, Cameron, R.R 2....	Yellow Russian..	16½	23½	8	19	22	89	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

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VICTORIA.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
FENELON AGR. SOCIETY.—*Con.*								
Jno. Graham, Fenelon Falls	O. A. C. 72	16	22½	7½	17½	22½	86	15
Josiah Flett, do	Granary Filler	15½	21½	8	18½	19	82½	15,4
Wm. Hetherington, do R.R. 3	O. A. C. 72	14½	19	7½	18	20	79	1,4
R. Isaac, do R.R. 1	do	13	18	7	18	19	75	15,13
W. F. Smitheran, Cameron	do	14	16½	7	14	20	71½	15
R. Junkins, Fenelon Falls, R.R. 3	Mammoth Cluster	12½	19	7	14	18	70½	4.15
VERULAM AGR. SOCIETY.								
Judge—J. N. McGill, Millbrook.								
H. R. Seymour, Bobcaygeon	Yellow Russian	17½	23	8	19½	22½	90½	15
Thos. Cosh, do	do	16½	23	8½	19½	22½	90	15
Ross Kimble, do	O. A. C. 72	16½	24	7½	19	21½	88½	15
M. M. Boyd & Co., do	Banner	16	22½	8½	18	22	87	15
Chas. H. Thurston, do	Yellow Russian	15	22	7½	18	21	83½	15
Robt. T. Robertson, Dunsford	Sensation	15½	20	9	17½	20½	82½	1
R. E. Thurston, Bobcaygeon		16	21	7½	16½	20½	81½	4.15
Jos. N. Taylor, do	Sensation	15	22	6½	16	20½	80	
Alex. Mitchell, do	do	16½	22½	7½	12	21	79½	4
G. Kennedy, do	O. A. C. 72	15½	15	7½	17	19½	74½	1.15
Jno. J. Devitt, do	do	12½	19	6	16	19½	73	15
Geo. Kimble, do	Early Yielder	12½	20	6½	15½	18½	73	15
WATERLOO.								
WILMOT AGR. SOCIETY.								
Judge—W. P. Hinman, Toronto								
L. Master, New Hamburg, R.R. 1	Banner	20	23	9½	20	23¼	95¾	
Jno. McDonald, New Dundee	do	19¾	23½	9½	19¾	23	95½	
M. Weicker, New Hamburg, R.R.1	O. A. C. 72	20	23	9½	20	22¼	94¾	
Wm. Hamilton & Son, Bright	O. A. C. No. 3	19½	22	10	18	22	91½	10
Alan R. G. Smith, New Hamburg, R.R. 1	O. A. C. 72	19¾	21	10	18½	22	91¼	
L. Roth, New Hamburg, R.R. 2	do	19½	10	9¾	19½	22½	81¼	2
R. Wettlaufer, do R.R. 3	Abundance	20	10	9½	19	22¼	80¾	2
A. E. Kerr, do R.R. 1	O. A. C. 72	19½	10	10	18	23	80½	2.10
J. B. Garland, do R.R. 1	do	19¼	10	9	20	21¾	80	2
C. S. Bender, do R.R. 2	Banner	20	5	9½	19½	22¾	76¾	2
WELLAND.								
BERTIE AGR. SOCIETY.								
Judge—Jas. McLean, Richmond Hill.								
Geo. Miller, Stevensville, R.R. 2	O. A. C. 72	17	20	8½	19½	21½	86½	
M. W. Sexsmith, Ridgeway	do	14½	24	8	19	20½	86	
J. W. Jewson, Fort Erie, R.R. 1	do	16½	20	7½	20	20	84	15,14

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OATS.

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WELLAND.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
BERTIE AGR. SOCIETY.—*Con.*								
Wm. Woehl, Bridgeburg, R.R. 1	O. A. C. 72......	15	21	8½	19	20	83½	14
F. A. Sexsmith & Son, Ridgeway. R.R. 2	Lincoln..........	15	22	6	19	20	82	12,15,14
F. D. Haines & Son, Fort Erie, R.R. 1	O. A. C. 72.......	14½	21	7½	18½	19½	81	15,14
H. J. Miller, Bridgeburg	do	15½	17	8	19	21	80½	15,10,14
Major Jas. E. Laur, do R.R. 1	do	12½	24	7½	18	18	80	
J. R. Phillips, Fort Erie. R.R. 1	Sensation........	14	20	7½	16½	19½	77½	15,14
Jno. M. McGaw, do R.R. 1	O. A. C. 72.......	15	13	7	20	20½	75½	14,15,5
R. B. Everett, Ridgeway, R.R. 2	do	15	18	6	17	19	75	15,14
FENWICK AGR. SOCIETY.								
Judge—Jas. McLean, Richmond Hill.								
D. Haist, Ridgeville, R.R. 1	O. A. C. 72......	17½	·25	9	20	23	94½	
J. H. Haist, Fenwick, R.R. 5 ..	do	16½	24	9	20	22	91½	
J. M. Haist, Fonthill	. do	15½	25	9	20	21	90½	
F. C. Haist, Ridgeville, R.R. 1..	Siberian.........	16½	21½	9	20	22½	89½	14,1
A. E. Howell & Sons, Fenwick. R.R. 5	O. A. C. 72......	15	19	9	20	21½	84½	15,14
J. L. Stirtzinger, Fenwick, R.R. 5	do	15½	20	8	19	21	83½	
Clemens Bros., do R.R. 5	Am. Banner......	14½	17	8	18½	20	78	14,2
Fred. Chambers, do	Sensation........	14	21	6½	18	18	77½	15,14
Chas. A. Bowman. do	O. A. C. 72.......	14	14½	8	18	19	73½	14,15,2
H. Stirtzinger, do R.R. 5	do	14½	12	8	19	19½	73	15,14
WELLINGTON.								
ARTHUR AGR. SOCIETY.								
Judge—Jas. Boyd, Markham.								
John Bodendistle, Kenilworth..	Banner..........	16½	17½	9	20	24	87	2,15
Jas. Bodendistle, do ..	do	16	17	8	19	23½	83½	2,15
A. Bailey, Belwood, R.R. 1	Tartar...........	16½	19	8	17	23	81½	2,4,15
Alex. Cook, Kenilworth, R.R. 4..	O. A. C. 72......	14½	20	7	16	23	80½	2,12
Peter Birns, Arthur	do	16	18	7	15	24	80	2,15
Alex. Cook, Kenilworth, R.R. 4..	....	16	16	8	16	22½	78½	2,12
E. Hays. Arthur	Banner..........	15½	14	9	17½	22	78	2,15,4
Bert. Hutchinson, do	do	15	15	7	19	22	78	2,15
Wm. Hutchinson, do	O. A. C. 72......	14	16	8	17	22	77	2,4
H. McConnell, do	Banner..........	16	12	8	18½	22	76½	1,2,15
R. McConnell, do	do	15	14	8	16	23	76	2,15,4,14
W. J. Golding, do R.R. 2	Yellow Russian...	13	14	8	16	22	73	2,15,10
Geo. Dodge, Kenilworth	Banner..........	13	13	8	15	23	72	2,15

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WELLINGTON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
CENTRE WELLINGTON AGR. SOCIETY.								
Judge—Wm. Hudd, Orangeville.								
J. H. Anderson, Fergus	O. A. C. 72.......	19	24	10	19	24	96	
Colbeck Bros., Elora	Elmhurst........	19	23½	8½	18½	25	94½	
R. S. Gale, Alma	Granary Filler...	18	23	9	19	25	94	
Ross Bros., Fergus	O. A. C. 72.......	18	20	10	18	24	90	
Wm. A. Atkinson, do	do	19	16½	10	19	25	89½	
L. Sargent, do	Derby..........	20	15	10	19	25	89	
A. A. Armstrong, do	Abundance.......	19	22	8	18	21	88	
L. Armstrong, do R.R. 4	Banner..........	18	18	8	18	25	87	
Wm. Hutcheon, Rockwood, R.R. 1	O. A. C. 72.......	17	19	7½	19	24	86½	
Jas. L. Benham, do R.R. 3	Abundance......	18	14½	10	20	23	85½	
Alex. Lindsay, Fergus, R.R. 2 ..	do	18	20	8	14	22½	82½	
Svend Meyer, Elora	do	16	10	9	18	22	75	
J. W. Wood, Fergus, R.R. 1	O. A. C. 72.......	17	5	10	16	25	73	
ERIN AGR. SOCIETY.								
Judge—M. W. Sexsmith. Ridgeway.								
Jas. Milloy, Erin	Reg. Banner......	19	24½	9	19½	23½	95½	15
McFee Bros., do	do	18½	24½	9	19½	23½	95	15
S. W. Bingham & Sons, do	do	17¾	25	8½	20	23½	94¾	
E. Barbour & Sons, Hillsburg ..	O. A. C. 72......	18½	23½	9½	19½	23	94	
F. McMillan, do ..	Reg. Banner.....	18½	23	9	19½	23½	93½	4
Geo. Overland, Orton, R.R. 3 ..	do	18	23½	8½	19	23½	92½	10
M. Leitch, Guelph	do	18½	19	9	20	23	89½	4
J. S. Overland, Erin	do	17½	22	9	18	22½	89	14
W. H. Burrows, Hillsburg, R.R.1	O. A. C. 72......	17½	24	9	17	21	88½	
S. E. Griffin & Son, Acton	Reg. Banner.....	18	17	9½	20	23¼	87¾	
Jno. Smith, Waldemar, R.R. 2..	do	17	20	9	19	22	87	11,4
R. D. Nodwell, Hillsburg	do	18	14½	9½	20	23½	85½	2
J. W. Burt & Sons, do	Ligowa..........	18	19	9	18	21	83⅜	11
MOUNT FOREST AGR. SOCIETY.								
Judge—J. A. Mallough. Dungannon.								
D. Murphy, Mount Forest	O. A. C. 72.......	18¾	21	9	19	22¼	90	2
Jno. W. Ghent, do R.R.5	do	17½	22	9	18	23	89½	2
A. Kirkness, do R.R.5	Imp. Banner......	17½	20	9	18	22½	87	2
A. Hutchinson, do R.R.4	O. A. C. 72......	16	19	9	19	22	85	2,15
D. McQueen, do R.R.1	do	16½	20	8	17	22	83½	2,5
J. S. Woods, do R.R.1	do	15	20	8½	17	21	81½	2,5
Jno. D. Ross, do R.R.1	Princess of Wales.	16	18	8	18	21	81	1
Fred. Ross, do R.R.1	O. A. C. 72......	15	18	8	17	21½	79½	
Brown Bros., do	do	15½	19	7	17	20½	79	1,10
Geo. W. Crow, Clifford, R.R. 3..	Banner..........	16	17	8	16	21	78	1,2
Sam'l Peckover, Mt. Forest, R.R.1	O. A. C. 72......	15	17	7	16	21½	76½	2
I. Robb, do R.R.2	do	15	16	7	16	20½	74	2

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OATS.

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WELLINGTON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
PUSLINCH AGR. SOCIETY.								
Judge—M. W. Sexsmith, Ridgeway.								
J. & G. W. Barclay, Guelph, R.R.6	O. A. C. 72.......	19¼	24½	9	20	23½	96¼	
D. A. McNaughton, Puslinch, R.R. 2	do	19	24	9½	20	23	95½	
H. McCaig, Sr., Hespeler, R.R. 2	do	17½	24½	10	20	22	94	
W. Winer & Sons, Guelph, R.R. 3	Reg. Banner......	18	24	9½	20	22	93½	14
A. Scott, Puslinch, R.R.1	O. A. C. 72......	18¼	24	9½	19¼	22¼	93¼	
W. D. Campbell, do R.R.1	do	19	24	9½	19	21	92½	
J. A. Cockburn & Sons, do R.R.1	do	17	24¾	9	20	21	91¾	
Alex. McLean & Sons, do R.R.1	do	18	21	9	20	22½	90½	
D. A. McLean, do R.R.1	do	18¼	21	9	19	22½	89¾	
P. J. McLean, do R.R.1	do	17½	20	9	20	22½	89	2,15
Jno. W. Kerr, do	do	18	20	9	18	22½	87½	
Chas. Currie, Morriston	Rennie's E. Yielder........	17½	22	9	17	22½	86⅜	
D. J. McLean, Puslinch, R.R. 1..	O. A. C. 72......	18½	16	9	19	23	85½	
Neil Stewart, Morriston	Lincoln..........	17½	22	9	16	21½	84⅜	15,14
ROCKWOOD AGR. SOCIETY.								
Judge—Jas. McLean. Richmond Hill.								
C. H. Harris, Rockwood	O. A. C. 72.......	18	25	9	20	23	95	
Jos. Gahan, do	do	18	25	8½	20	22½	94	
Wm. G. Chapman, do	do	19½	22	9	20	23	93½	2
A. F. Auld, Guelph, R.R. 2	Golden Rain......	17½	25	9	20	23½	93⅜	
Jno. Cummings, Rockwood.	O. A. C. 72.......	19	21½	9	20	23	92½	2
M. E. Burns, do R R. 4	Golden Rain......	17	24	8½	20	22½	90⅜	
B. Tolton, 159 Perth St., Guelph	O. A. C. 72.......	16½	22½	7	20	22½	88½	2
W. Talbot, Everton	Abundance.......	16	24	8	19	21	88	
Jos. Stovel, Rockwood, R.R. 1	O. A. C. 72.......	17	20	7½	19	22½	86	2
Neil McLean, do	Golden Rain......	17	22	8	16½	22½	84⅜	2
H. Black, do R.R. 4	Banner..........	16½	10	7	18	22	73½	15,1,13
Henry Maude, do R.R. 4	Golden Rain.....	16½	10	6	19	21	70½	2,13
WENTWORTH.								
ANCASTER AGR. SOCIETY.								
Judge—Jas. McNeil, Maple.								
Wm. E. Shaver, Ancaster, R.R. 2	Am. Banner.....	17	23	8	19	22	89	15
T. G. Brown, do R.R. 2	O. A. C. 72.......	17	20	9	19	23	88	
B. Calder, Glanford, R.R. 3	Silvermine.......	15½	21	8	18	20	82½	
Ed. Lyons, Ancaster	O. A. C. 72.......	15½	23	8	17	18	81½	10
J. S. Howell, Jerseyville	do	15½	20	8	18	19½	81	
Thos. Calder, Glanford, R.R. 3..	do	15	23	8	14	20½	80½	
Wm. English, Ancaster, R.R. 2..	do	14½	22	6	18	19½	80	
J. T. English, do	Derby...........	14	19	8½	19	18	78½	10
Adam Calder, Glanford. R.R. 3	Silvermine......	14	19	8	18	18½	77½	2
Jas. Oakes, Ancaster, R.R. 2	O. A. C. 72.......	13	18	8	18	16	73	15
B. Cope, do R.R. 2	do	13½	20	7	12	18	70½	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

OATS.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
WENTWORTH.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
BINBROOK AGR. SOCIETY.								
Judge—Jas. McLean, Richmond Hill.								
N. A. Fletcher, Hannon, R.R. 1	O. A. C. 72.......	16	21	7	18½	21	83½	15
Geo. E. Clark, Smithville, R.R. 1	do	16	23½	7	17	19½	83	15
Geo. Daw, Glanford Sta.	Banner..........	15½	20	7	20	20	82½	15,14
J. S. Switzer, do R.R. 1	Siberian.........	15½	23	7½	18	20	82§	15
H. Johnson, Binbrook	O. A. C. 72.......	16½	18	7	19	20	80½	2,15,14
Thos. S. Fletcher, Hannon, R.R. 1	Banner..........	15½	24	6	15	18	78½	
H. Lester, Woodburn	....	14½	18	7½	17½	19½	75§	15,5
W. J. Guyatt, Glanford. R.R. 1	Siberian.........	14	18	6	17	18½	71½	§2,14
J. I. Fletcher, Hannon, R.R. 1..	O. A. C. 72.......	16½	10	7	17	20	70½	5,2,1
WEST FLAMBORO AGR. SOCIETY.								
Judge—W. Hickson, Bobcaygeon.								
Thos. George, Millgrove, R.R. 1	Early Lincoln....	17½	23	6	19	22	87½	14
H. Balison, Puslinch, R.R. 3....	Granary Filler...	15½	23	8	20	20½	87	
C. W. Goodbrand, Hamilton, R.R.2	O. A. C. 72.......	16½	22	8	18¼	22	86¾	15
Wm. Beaton, do R.R.2	do	15½	22½	8	19½	21	86½	15
Jas. A. Gray, Freelton	Early Lincoln...	15	23	6	20	21	85	
Geo. E. Kirk, do	Swedish Giant...	14½	23½	6½	19	20½	84	
Birds Gundy, Mountsburg	Abundance.......	16	22	6	18	21½	83½	
G. W. Cummins, Puslinch. R.R.3	Early Lincoln....	15½	20	8	19	20	82½	15
W. Lambier, Millgrove, R.R. 1..	Banner..........	16	19½	7	18	21½	82	
Jas. A. Gartley, Puslinch, R.R. 3	Banner and Mammoth cluster...	17½	23½	7	10	23	81	
T. Goodbrand, Waterdown, R.R.1	O. A. C. 72.......	17½	13	5	20	23	78½	2,15
E. Gartley, Millgrove. R.R. 1...	....	16½	19	5	10	24	74½	15,14
Jas. Morison, do R.R. 1...	Registered Abundance.....	16½	10	6	20	21	73½	2
YORK.								
SCARBORO AGR. SOCIETY.								
Judge—W. Hickson, Bobcaygeon.								
McCowan Bros., Scarboro	Yel. Russian.....	18	23½	8	20	22½	92	
Wm. Loveless, Scarboro Jct., R.R. 1	Banner..........	17½	22	8½	18	23½	89½	10
F. J. Fisher, Agincourt, R.R. 1.	Granary Filler...	18	21	8	18	23½	88½	15
J. S. Baird, Scarboro Jct., R.R. 1	O. A. C. 72......	17½	20	8½	18	23½	87½	15
A. P. Wheeler, Agincourt. R.R. 1	Banner..........	16½	22	8	18	21	85½	15
W. A. Paterson, do	do	17½	20	7¼	18	22½	85¼	2,10
Jas. Scott, do R.R. 1	do	16½	18	9	19	22½	85	9
R. M. Loveless, do R.R. 1	do	17½	18	8	18	22½	84	
G. B. Little, do R.R. 1	do	16	20	8	18	22	84	10
Arch. M. Muir, Scarboro	Yel. Russian.....	18	14	8	20	23½	83½	2,15
J. A. Thomson, Agincourt, R.R. 1	Scotch Hero......	17	22	6	18	21½	82½	§
A. E. Kennedy, do R.R. 1	Early Lincoln....	17½	22	5½	18½	20	81½	§
J. M. T. Weir, do R.R. 1	Granary Filler...	18	13	9	17	22½	79½	2
H. K. Clark, do R.R. 1	Early Lincoln....	17	12	6	18	23	74	§2,10

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.		(20)	(25)	(10)	(20)	(25)	(100)	
HURON TP. AGR. SOCIETY.								
Judge—Jas. Pullin, Woodstock.								
Harry Courtney, Ripley, R.R. 1	Dawson's G. Chaff.	16	22	6	19	19	82	
Thos. J. Scott, do R.R. 1	do	14	22	6	18	20	80	15
W. C. Smith, do R.R. 1	do	14	20	5	18	17	74	15,16
TEESWATER AGR. SOCIETY.								
Judge—Jas. Pullin, Woodstock.								
Archie Jarvis, Teeswater	Winter King.....	18	23	9	19	23	92	13
David McDonald, do	Dawson's G. Chaff.	17	23	9	18	23	90	14,15
Robt. Keith, do	Sleep and I'll Pay the Rent...	17	21	8	18	22	86	3
Jas. D. Little, do	do	16	23	6	19	21	85	14
Jno. McRae, do	Dawson's G. Chaff.	13	24	8	20	18	83	13
Thos. Moffatt, do	Sleep and I'll Pay the Rent...	13	20	8	19	20	80	3,15
T. A. Goodfellow, do	Dawson's G. Chaff.	14	22	8	18	16½	78½	14,15
Jos. McKague, do	Sleep and I'll Pay the Rent...	15	22	6	19	16	78	
J. S. Armstrong, do	Dawson's G. Chaff.	15	20	6	18	19	78	14
F. A. Ballogh, do	Winter King.....	14	20	5	16	20	75	15,13
A. B. & W. McKague, do	Sleep and I'll Pay the Rent...	12	20	8	18	15	73	
DURHAM.								
MILLBROOK AGR. SOCIETY								
Judge—W. J. Barber, Rossmore.								
W. R. N. Sharp, Ida R.R. 1	Dawson's G. Chaff.	17	24½	9	18½	23½	92½	15
D. A. Henry, Millbrook	do	16½	24	8½	19	20½	88½	15
J. E. Allin, do	do	17	23	9½	18	20½	88	15,14
T. A. Kelly, Fraserville	do	16½	22	9	19	21	87½	15,9
W. T. Donaldson, Millbrook, R.R. 1	do	16½	23	7	18½	22	87	15
J. H. Paul, Fraserville, R.R. 1..	do	17	18	8½	16	20½	80	15,10.9
Jno. Earl, Ida, R.R. 1	do	16	18	9	16	20½	79½	9,16
Robt. McKnight, Millbrook	do	12½	20	8	16	14	70½	15,16
KENT.								
HOWARD AGR. SOCIETY.								
Judge—Lee Cascadden. Aylmer.								
Geo. McDonald, Ridgetown	Dawson's G. Chaff.	18	20	9	18	22½	87½	12,13,16
Fred. McGregor. do R.R. 2	do	17	20	9	18	23	87	2,13.9

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, method of seeding, absence of lodging.

†Yield and quality of grain—considering proportion of well-filled heads of plump grain of good quality and uniformity of maturity.

‡See key page.

§Points deducted for non-standard variety.

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
KENT.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
HOWARD AGR. SOCIETY.—*Con.*								
Harry George, Ridgetown, R.R. 2	Dawson's G. Chaff	17	20	9	17	23	86	5,13
Clifford Smith, do R.R. 3	do .	17	21	8	17	22	85	14,16
Herb. Guyatt, do R.R. 2	do .	17½	18	8	18	23	84½	13,2
Arthur Colton, Northwood, R.R.3	Nigger...........	16	22	8	18	20	84	14,16,9
W. Leatherdale, do R.R.3	do	16	20	8	18	20	82	15,9
Will'd Simpson, Ridgetown, R.R.1	Dawson's G. Chaff.	16	20	8	17	20	81	9,13,14
D. R. McDiarmid, do R.R.2	do .	16	18	8	18	21½	80½	9,14
J. D. O'Brien, do	do .	15½	18	8	17	21	79½	9,10
Wm. McDonald, do	do .	14	18	7	18	21	77	16,10
ORFORD AGR. SOCIETY.								
Judge—Robt. Berry.								
St. Mary's.								
Jno. A. Bishop, Muirkirk, R.R. 1	Nigger...........	16½	23½	9	18	21½	86½	§
F. H. Leverton, do	Snowflake........	18	22	9	16½	22½	86§	15
Roy R. McLaren, Highgate	Dawson's G. Chaff.	16½	20	9½	17	21½	84½	14.16
Jno. Wade, do	Michigan Amber..	16½	20	9	17½	22	81§	9,14
Alex. G. McDonald, Muirkirk ..	do .	13½	21½	9	17	20	79§	16.14
F .W. Scott & Sons, Highgate ..	Gold Coin........	13½	21	9	14½	20	76§	13,16
N. Littlejohn & Son, do ..	Dawson's G. Chaff.	13½	18	9	15	19½	75	13,16
A. Roberts, Muirkirk	do .	13½	17½	8	14½	18½	72	14.16
LAMBTON.								
BROOKE AND ALVINSTON AGR. SOCIETY.								
Judge—Jas. Boyd, Markham.								
Neil McCallum, Alvinston, R.R. 4	Manchester......	17	23	8½	18	23½	90	15
W. J. Weed, do R.R. 7	do	16	22½	8½	18	24	89	15,16
D. G. Maddock, do R.R. 7	Dawson's G. Chaff.	16	23	8½	18	23	88½	15.16
T. H. Lovell, do	do .	16	22	9	18	23	88	15.16
Jno. Willer, Watford, R.R. 2	do .	16½	22	8	18½	22½	87½	14,16
D. A. McIntyre, Alvinston, R.R. 7	Gold Coin........	16	23	8	17	23	87	14,16
Duncan Cann, do R.R. 4	Dawson's G. Chaff.	14	23	9	18	22½	86½	16.14,15
Jno. McLachlin, do	do .	14	23	8	17	23	85	15.14,3
A. R. McLachlin, do R.R. 4	Manchester......	16½	20½	8	17	22½	84½	9.15.14.16.3
David Hayter, do R.R. 4	Dawson's G. Chaff.	15	23	5	18	23	84	15,16
Jas. Hand, do R.R. 4	do .	13½	22	8	18	22	83½	16
Robt. Mitchell, do R.R. 1	Manchester......	13½	22	8	18	21	82½	14,16
Thos. Braithwaite, do R.R. 4	Dawson's G. Chaff.	13	21	9	18	21	82	14,16,3
R. Williamson, Watford, R..R 3	do .	14½	19	8	19	21	81½	14,16
C. McCarter, Alvinston, R.R. 4	do .	14½	19	8	18	21½	81	3,13,14.16
P. D. Dolbear, Alvinston, R.R. 1	do .	13½	20	8	18	21	80½	3,13,16,9
Jas. McCallum, do R.R. 4	do .	14	19	8	18	21	80	15.14.16
J. W. Oke, do R.R. 6	Manchester......	12½	20	8	18	21	79½	15,14
Don. Fisher, do R.R. 2	Dawson's G. Chaff.	12½	18	8	18	20	76½	4.16.15.14

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
LAMBTON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
FLORENCE AGR. SOCIETY								
Judge—J. A. Mallough, Dungannon.								
J. H. Buchanan, Thamesville, R.R. 2	Manchester	17½	22	8½	18	22½	88½	
B. W. Fansher, Florence	Dawson's G. Chaff.	17	20	9½	19	22½	88	
Joe Ferguson, Oil Springs	do	18	20	9	17	22½	86½	15
M. Mayrand, Florence, R.R. 2	do	16½	20	9	18	22½	86	
Walter Prangley, do R.R. 2	Niagara Red	15½	21	8	18½	22	85	
C. E. Bodkin, do	Dawson's G. Chaff	15½	21	9	18	21	84½	13
Walter McFadden, do R.R. 2	do	16	19	8	17	21	81	13
E. Sayers, do	100 Mark	16	19	8	17	20	80	16
J. A. Webster, Thamesville, R.R.2	Dawson's G. Chaff.	14	20	8	18	18	78	13
O. E. McRobert, Florence	Niagara Red	14½	18	8	17	20	77½	13,16
J. B. Coneybeare, Croton, R.R. 1	Dawson's G. Chaff.	13	18	7	18	19½	75½	13
Jas. Coneybeare, Dresden, R.R. 2	100 Mark	14	17	7	17	20	75	
SOMBRA AGR. SOCIETY.								
Judge—E. J. Mullins, Woodslee.								
Stewart McDonald, Pt. Lambton	O. A. C. 104	14½	21½	7½	20	20	83½	
W. A. Scott, Sombra, R.R. 3	....	18	24	7	7	25	82	
Jno. McRae, Port Lambton	Red Nigger	16	20	8	15	20	79	
Johnnie Johnston, do	Mixed	20	25	8½	....	25	78½	
Harry Sheller, do R.R. 2	Red Nigger	15	22	5	16	20	78	
J. C. Reid, Wallaceburg, R.R. 5	Dawson's G. Chaff	17	18	7	15	19	76	
Jno. E. Dupuis, Sombra, R.R. 3	....	16	21	7	8	23	75	
J. C. McMillan, Port Lambton	O. A. C. 104	10	25	8	20	10	73	
Wm. Stenton, do	Nigger	16	16	7	15	17	71	
Bert Payne, do	Am. Banner	14	20	....	17	19	70	
LINCOLN.								
MONCK AGR. SOCIETY.								
Judge—T. G. Brown, Ancaster.								
B. Atkinson, Wellandport	Dawson's G. Chaff.	17½	23	9	18½	22	90	
S. Heaslip, do	Abundance	17	21½	8	18½	21½	84½	813
L. F. Blanchard, do	Dawson's G. Chaff	16½	20	8	18	20½	83	13
O. McPherson, St. Ann's	do	17½	20	7	18	20	82½	13
Jno. Cosby, Wellandport	do	15½	19	7½	18	21½	81½	13
L. Traver, do	do	15	19	8	18	21	81	13
Clyde Robbins, Fenwick, R.R. 1	do	15½	20	8½	17	18½	79½	14
A. Kennedy, St. Ann's	do	15	18	7	18½	20½	79	13
Melvin Robins, Wellandport	do	15½	18	7½	17½	20	78½	13
Gordon Robins, do	do	15½	16	8	17	18½	75	13

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

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MIDDLESEX.		(20)	(25)	(10)	(20)	(25)	(100)	
LONDON TP. AGR. SOCIETY.								
Judge—W. P. Hinman, Toronto.								
P. L. Graham, Ilderton	Golden Chaff.....	19½	24½	10	19¾	24	97¾	14
J. D. McEwen, Denfield, R.R. 3	do	19½	24½	9¼	19½	24½	97	14,16
G. Charlton & Sons, do	do	19¾	24½	9	19½	24	96¾	
Robb Bros., Ilderton	do	18½	24	9¾	19½	24½	96¼	15
Jno. McGugan, Denfield	do	18½	24	10	19¾	23¾	96	2
Jas. McPherson, Ilderton	Dawson's G. Chaff.	18¾	24	9½	19	24	95¼	13,16,15
V. Grieve, do	do .	18¼	24	9¾	19½	22¾	94¾	
Geo. Long, Komoka	do .	17	24	9½	19¼	23¾	93½	
E. Caverhill, Ilderton	Golden Chaff.....	17½	24½	9½	19	22½	92¾	16
W. T. Whillans, do	....	19	21	9½	19	24	92½	
W. A. McInroy, do R.R. 1	Golden Chaff.....	17	24	9½	19½	22½	92½	
R. S. Douglas & Sons, do	....	18	22	10	18	23	91	
Alex. Stewart, do	Dawson's G. Chaff.	16	24	9	19	22	90	
Geo. Carter, do R.R. 4	do	17	22	9	19	22½	89½	§14
C. W. Hobbs, Denfield	Golden Chaff.....	17½	20	9½	19	23	89	13,14,15,2
R. Cunningham, do	do	15	24	8½	19	22	88½	13,16
MOSA AND EKFRID AGR. SOCIETY								
Judge—J. A. Mallough Dungannon.								
A. P. Ferguson, Alvinston	Dawson's G. Chaff.	16	22	9	17	22	86	3
W. H. Reycraft, Glencoe	do .	16	22	9	17	21	85	
A. B. McDonald, do	do .	16	22	8	17	21½	84½	
Jno. Gould, do R.R. [illegible]	do .	16	18	8	18	22	82	3
Wm. Munroe, do	do .	13	20	7	16	18½	74½	
Jno. McLachlan, Alvinston	do .	13	18	7	17	19	74	
W. A. McCutcheon, Glencoe	do .	13	17	7	18	18	73	
Dennis McDonald, do R.R. 3	do .	13	16	7	16	19½	71½	
Jas. McRae, do R.R. 3	do .	13	17	8	15	18	71	
B. Phipps, do R.R. 4	do .	12½	18	7	15	18	70½	
NORTH MIDDLESEX AGR. SOCIETY.								
Judge—W. P. Hinman, Toronto.								
Jas. Darling, Parkhill, R.R. 8.	Dawson's G. Chaff	18¾	24¾	10	19¾	23¾	97	
Don. Stewart, Ailsa Craig, R.R. 1	Gold Coin........	19¼	24	9½	19½	24¼	96½	
E. Hughes, do R.R. 1	do	19¼	24½	9¾	19	23½	96	
P. McEwen, do R.R. 1	do	19½	24	9	19	24	95½	
E. Darling, Clandeboye, R.R. 1..	Dawson's G. Chaff	18½	24½	9½	19¾	23	95¼	14
Leitch Bros., Ailsa Craig, R.R. 1	Gold Coin........	18¾	24¾	9½	18½	23½	95	
Chas. Lynn, Clandeboye, R.R. 1	Golden Chaff.....	18	24½	9¾	19	22¾	94	3
McPherson Bros., Parkhill, R.R.6	Early Windsor...	18	24	9½	17¼	23½	92¼	
G. Hindmarsh, Ailsa Craig, R.R.2	Golden Chaff.....	18½	20	9	19	24	90½	12
Freeman Hughes, Denfield R.R.1	Gold Coin........	18½	20	9½	19	23½	90½	16
J. McFarlane, Ailsa Craig, R.R. 1	Golden Chaff.....	18	21	9	19½	22½	90	10,14
Neil McLachlan, do	do	17	24½	7	19½	21½	89½	
A. D. McLean, Parkhill, R.R. 6	Red Clawson....	18	21	9½	17	22½	88	3,8,16

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FALL WHEAT.

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OXFORD.		(20)	(25)	(10)	(20)	(25)	(100)	
N. NORWICH AGR. SOCIETY.								
Judge—Jas. Boyd, Markham.								
G. A. Poole, Harley, R.R. 2	Dawson's G. Chaff.	17	22	9	19	22	89	10,14,15
Alex. Rettie, Norwich	do	17	20	9	19	23	88	9,10,15
Jno. Wilson, Burgessville	do	14½	23	9	19	22	87½	15
B. G. Palmer, Norwich	do	15	23	8	19	22	87	14,15
E. B. Palmer, do R.R. 3	do	13½	23	9	19	22	86½	14,15
H. McPherson, do R.R. 3	do	16	22	8	18	22	86	3,14
Howard Jull, do	do	14	21	9	19	22	85	9,10,14,15
Ira Tisdale, do	do	16½	20	9	17	22	84½	12,14,15,16
Chas. Butler, do	do	13	24	8	19	20	84	3,15,16
W. J. Cohoe, Burgessville	do	14	23	8	17	21	83	15,16
D. A. Butler, Norwich, R.R. 3	do	14	20	8	17	22	81	3,5,15
D. E. Hutchinson, Burgessville, R.R. 1	do	14	20	8	18	20	80	10,14,15
J. M. Hutchinson, Burgessville.	do	13	19	9	18	20	79	9,10,15,16
PERTH.								
KIRKTON AGR. SOCIETY.								
Judge—W. Hickson, Bobcaygeon.								
Jas. Moore, Kirkton, R.R. 1	Dawson's G. Chaff.	18½	24	9	19	23	93½	15
D. Rogers, St. Mary's. R.R. 1	do	19	24	9	18½	22½	93	14,16
W. Cowans, Science Hill, R.R. 1	do	18½	23	9	18½	22½	91½	14,15,16
W. Radcliffe, St. Mary's R.R. 1	do	18	22	8	18½	24½	91	14,15
Jas. Robinson, do R.R. 1	do	17	22½	9	19	23	90½	14,16
A. Bickell, do R.R. 1	do	17	23	8	19½	22½	90	15
Wm. Harding, do R.R. 1	do	18½	20½	9	19	22½	89½	14,16
R. Ratcliffe, Science Hill, R.R. 1	do	16¼	23	8½	19½	22	89¼	14,15
D. Hackney, Kirkton, R.R. 1	do	16½	22½	8½	18	23	88½	15,16
C. S. Atkinson, St. Mary's R.R. 1	do	17½	21	9	19	21½	88	15,16
A. W. Gunning, Kirkton, R.R. 1	do	16½	21	8½	19½	22	87½	15,16
Milton Gregory, do R.R. 1	do	13½	24½	8	19½	21	86½	
W. Denham, do R.R. 1	do	19	15	8½	19½	24	86	16
Wesley Shier, Woodham	do	14½	22	7½	20	21½	85½	14,15
P. Madge & Son, do R.R. 1.	do	16	20	7½	18½	23	85	15,16
W. Hollingshead, Kirkton, R.R. 1	do	15½	20	8	19½	21½	84½	3,15,16
W. M. Switzer, St. Mary's R.R. 6	do	19	17	7	17	22½	82½	14,16
A. Rundle, do R.R. 6	do	18	17	7	17	22	81	15,16
M. Brethour, do R.R. 6	do	18	12	8	19	23½	80½	2,15,16
Jas. Stephen, do R.R. 1	do	15	20	7	10	21½	73½	3,15
Robt. Spence, do R.R. 6	Old Reliable	15	16	7½	12	21½	72	3,14,16

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PETERBOROUGH		(20)	(25)	(10)	(20)	(25)	(100)	
OTONABEE AGR. SOCIETY								
Judge—A. J. Thomson, Toronto.								
J. E. Manley, Peterboro, R.R. 8	Red Clawson....	17	23½	9	18	19½	87	
C. C. Nelson, do	Dawson's G. Chaff.	16	22	8	17	22	85	11,16
C. McIntyre, do R.R. 2	do .	15½	20	8½	17	22½	83½	9,11,14,16
J. Robertson, Keene. R.R. 2	do .	14	16	7	16	19	72	2,15,16
R. Plunkett, do R.R. 1	do .	14	14	7	16	20	71	2,10,15
R. A. Nelson, do R.R. 1	do .	12	17	8½	15	17½	70	10,16
VICTORIA.								
VERULAM AGR. SOCIETY.								
Judge—A. J. Thomson, Toronto								
H. R. Seymour, Bobcaygeon,R.R.3	Sleep and I'll Pay the Rent...	17½	24½	9	17	19½	87½	§
Geo. Kimble, do R.R. 3	do .	10	24	8½	18	20	80½	§15
R. E. Thurston, do	do .	15½	19	8½	18	18½	79½	§14,15
T. H. Martin, do	do .	13½	21½	8	17½	18	78½	§15
Garfield Kennedy, do	do .	16	15½	8½	18	18½	76½	§14,15
Herb. McGee, do R.R. 1	do .	10½	23	7	17	18	75½	§
Archie Campbell, do R.R. 2	do ..	14½	17	8	17	18½	75§	15
Thos. Cosh, do R.R. 1	do .	12½	20	7	17	17	73½	§15
M. M. Boyd & Co., do R.R. 2	do .	12½	18	6½	17	17½	71½	§15
WATERLOO.								
S. WATERLOO AGR. SOCIETY.								
Judge—Alex. Morrison, Creemore.								
G. P. Moore, Galt, R.R. 7	Dawson's G. Chaff.	18	24	9	19	22½	92½	
Lincoln Hagey, Blair, R.R.	do .	18	24	9	19	22	92	
G. R. Barrie & Son, Galt, R.R. 7	do .	16½	24	9	20	22	91½	9
A. G. Taylor, do R.R. 7	do .	16	24	8	20	22½	90½	
J. A. Dawson, Burford, R.R. 1..	do .	16½	23	9	19	22½	90	16
Matthew Scott, Galt, R.R. 3 ...	do .	16	22	9	20	22	89	9,15
Wm. Copeland, Ayr, R.R. 2	O. A. C. 104......	15½	25	9	18	20½	88	
R. and D. Arthur, Branchton ..	Dawson's G. Chaff.	16	23	8	18	22	87	15
R. E. Cowan, Galt, R.R. 3	do .	16	23	8	19	19½	85½	
Clarence Hilborn, New Dundee, R.R. 1	do .	15½	21	8	19	20½	84	14,15
Thos. Young, Galt, R.R. 4	do .	15½	21	8	17	22	83½	16
Austin Switzer, Ayr, R.R. 1	do .	16	21	8	15	23	83	13,16
W. C. Sutherland, Galt, R.R. 7	do .	15½	20	8	18	21	82½	15
Jas. Lake, do R.R. 7	do .	16	22	5	17	22	82	16
Aaron Clemens, Hespeler, R.R. 1	do .	14	20	7	19	21	81	15
Daniel Ludwig, Preston, R.R. 2	do .	13½	20	8	17	21½	80	14

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

FALL WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
WATERLOO.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
S. WATERLOO AGR. SOCIETY.—*Con.*								
A. S. Clemens, Hespeler, R.R. 1	Dawson's G. Chaff	14½	19	8	17	20½	79	2,15
J. S. Wallace, Galt, R.R. 4	Golden Jewel	13½	18	8	17	21½	78	14,15
W. C. Shaw, Hespeler, R.R. 2	Dawson's G. Chaff	13	21	6	19	18½	77½	
R. F. Macdonald, Branchton	do	14	18	8	17	19	76	13,14,16
E. Z. Kemkes, do R.R. 1	do	13	19	7	17	19	75	9,15
Aaron Hagey, Blair, R.R. 1	do	12	20	6	17	19	74	13,16
Wesley Eaton, Hespeler, R.R. 1	do	12	19	6	18	18	73	15
WELLINGTON.								
PUSLINCH AGR. SOCIETY.								
Judge—Alex. Morrison. Creemore.								
J. A. Cockburn, Puslinch, R.R. 1	O. A. C. 104	16	23½	8	18	21½	87	9,15
J. W. Kerr, do R.R. 1	Dawson's G. Chaff	15½	23	8	18	21½	86	9
Andrew Scott, do R.R. 1	Imperial Amber	15½	22	7½	18	22	85	9,13
Jas. Clark, do R.R. 1	Dawson's G. Chaff	15	22	8	18	21	84	9
Neil Stewart, Morriston	do	15½	22	8	17	20½	83	9,14
G. Henderson, Guelph, R.R. 7	Imperial Amber	13½	21	7	20	20½	82	12
P. J. McLean, Puslinch, R.R. 1	do	14½	20	7	19	20½	81	15
Jas. Barclay, Guelph, R.R. 6	Jewel	14½	20	7½	18	20	80	9
D. J. McLean, Puslinch, R.R. 1	Imperial Amber	15	19	7	18	19	78	15
Chas. Currie, Morriston	do	13½	18	7	18	20½	77	9
P. J. McLean, Jr., Puslinch, R.R.1	Abundance	13	18	8	17	20	76	13,16
D. A. McLean, do R.R. 1	Imperial Amber	12	18	6	17	22	75	9
H. McCaig, Sr., Hespeler, R.R. 2	Dawson's G. Chaff	12	17½	6½	17	20	73	9,15
Thos. Foley, Puslinch, R.R. 1	Abundance	12	17	6	17	19	71	2,5,10
YORK.								
WOODBRIDGE AGR. SOCIETY.								
Judge—R. Murphy, Alliston.								
C. A. McNeil, Maple	Winter King	16	21	9	18	21	85	10
W. Stevenson, Woodbridge	Amer. Banner	16½	17	9½	19	22½	84½	1,4
J. W. Wallace, do	Winter King	15	22	8	19	19½	83½	4
Robt. Orr, Maple	Dawson's G. Chaff	16	18	9½	19	20½	83	3,9,10
J. Kellam, Kleinburg	Gold Coin	15	20	9	19	18	81	9,15
G. Mathewson, Maple	do	15	18	9½	19	18	79½	3,4,10
Archie Cameron, Woodbridge	do	18	10	9½	19	21	77½	1
Jno. Campbell, do	Amer. Banner	16½	13	9	18	20	76½	1
Jesse Roe, do	Winter King	16½	12	8	18	21½	76	1,4
Nelson Snider, do	Amer. Banner	16½	12	9½	18	19½	75½	1,4,10
Wm. Kyle, Maple	Winter King	15½	14	9	17	19½	75	3,9
Wm. Cameron, Woodbridge	do	17	13	9	16	19	74	1,4

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.		(20)	(25)	(10)	(20)	(25)	(100)	
LUCKNOW AGR. SOCIETY.								
Judge—E. I. McLoughry, Markdale.								
Jno. Webster, Lucknow, R.R. 2	Marquis	19	22	7	19	20	87	1
Jos. Collings, Ripley, R.R. 1	do	16	20	5	16	16	73	
W. E. Smith, do R.R. 1	do	13	19½	5	16	18	71½	1
Samuel Phillips, Lucknow, R.R. 2	do	17½	10	7	16	20	70½	1
CARLETON.								
FITZROY AGR. SOCIETY.								
Judge—G. W. Davidson, Kemptville, R.R. 4.								
E. O. Wilson, Kinburn, R.R. 1	Marquis	18	22	8½	19	22	89½	4,2
W. T. Smith, Galetta	do	18	20	8½	19	23½	89	4
J. E. Armstrong, Kinburn	do	17	20	8½	19	23½	88	4,2
E. H. Miller, Galetta	do	18	21	8	18½	22	87½	4,10
W. Allison, do	do	18	21	7	18½	22½	87	4,14
J. A. Anderson, Kinburn, R.R. 1	do	16	22	8	18	22	86	1,4
Robt. G. Gillan, Pakenham	do	16	22	6	18	21	83	4,15
O. Laughlin, Kinburn	do	15	20	8	18	21½	82½	4,15
A. J. Halpenny, Galetta	do	15	20	8	18	21	82	4
R. J. Story, do	do	16	18	8	17	21	80	4,10,3,15
F. R. Gourlay, Kinburn	do	15	20	7	17	20	79	4,7
P. M. Herrick, Galetta	do	14	18	8	18	20½	78½	
M. Muldoon, do	Red Fife	15	16	8	17	20	76	10,17
LEEDS.								
LANSDOWNE AGR. SOCIETY.								
Judge—S. G. Gourlay, Ottawa.								
D. B. Johnston, Lansdowne	Marquis	18½	21	9	18	22	88½	
O. W. Landon, do	Red Fife	18	21	9	16	21½	85½	
Geo. A. Loney, do	do	17½	22	8½	16	20½	84½	
H. A. McNeely, do	Marquis	17	21	8½	18½	19	84	
Jos. Shields, do	do	16	22	8½	16	19	81½	
Robt. Shields, do	do	15	20	8	15	17½	75½	
W. Landon, do	do	14½	17	8	17	18	74½	
Geo. W. Ruttle, do	do	16	17	8	14	19	74	
Jno. S. Elliott, do	do	16	17	7½	14	19	73½	
Thos. Stacey, do	do	15½	17	7½	14	18½	72½	

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, method of seeding, absence of lodging.

†Yield and quality of grain—considering proportion of well-filled heads of plump grain of good quality and uniformity of maturity.

‡See key page.

§Points deducted for non-standard variety.

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
MANITOULIN.		(20)	(25)	(10)	(20)	(25)	(100)	
GORE BAY AGR. SOCIETY								
Judge—J. A. McDermid, Collingwood.								
Geo. Strain, Sr., Gore Bay	Club..............	15½	20	7	17	18½	76§	2
Jno. W. Best, do	Marquis..........	15	18	7	15	16½	71½	15,17,14, 13,2
Arch. Campbell, Foxey	do	15	18	6	18	14	71	
PARRY SOUND.								
MCMURRICH AGR. SOCIETY.								
Judge—E. H. Purdy, Port Perry.								
Geo. W. Copeland, Sprucedale ..	Marquis..........	20	20	8	18	23	89	12
Jas. Downes, do ..	do	18	20	10	18	21	87	10
H. Watson, do ..	do	13	25	10	20	18	86	
C. and Jas. Stewart, Doe Lake ..	do	17	12	8	18	25	80	12,13,2
J. C. Marshall & Son, Sprucedale	do	16	20	7	18	15	76	
D. Cudmore, do	do	15	20	7	15	17	74	12
Geo. Downes. do	do	13	20	5	15	17	70	
PETERBOROUGH.								
PETERBOROUGH IND. AGR. SOCIETY.								
Judge—W. F. B. Switzer, Streetsville.								
J. D. Fowler, Peterborough	Marquis.	17	24	10	19	22	92	
A. B. Mann, do R.R. 4	do	17	20½	9	19	20½	86	15
Gordon Mann, do	do	19	15	10	18	23½	85½	1,15,4
R. A. Garbutt, do	do	16	20	8	19	22	85	15,14
C. H. Westlake, do R.R. 2	do	17	23	8	18	16	82	15
W. L. White, do	do	16	23	7	18	17	81	15
Ira Robson, do	do	16	24	8	16	22	86	
W. McKee, do	do	17	10	8	17	19	71	2,1,15
PRESCOTT.								
ALFRED AGR. SOCIETY.								
Judge—W. V. Kidd, Woito, R.R. 1.								
S. Parisien, Alfred	White Fife.......	19	24	10	20	25	98	4
Alex. Charbonneau, do	Marquis..........	19	23	9	18	24	93	15
D. Charbonneau, do	White Fife.......	18	22	9	18	23	90	
E. Parisien, do	do	16	20	8	17	23	84	4

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
PRESCOTT.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
ALFRED AGR. SOCIETY.—*Con.*								
Arthur Daoust, Alfred	Marquis..........	16	20	8	17	22	83	15,4,12
O. Sauve, do	White Fife.......	16	18	6	16	21	77	
Jos. Parisien, do	Marquis..........	13	20	9	15	19	76	12
J. A. Cadieux, do	do	17	14	7	17	20	75	4,2,12
A. Landriault, do	do	14	20	8	14	18	74	2
Oscar Parisien, do	White Fife.......	14	20	6	14	17	71	4,12
J. Bte. Rouleau, do	do	14	15	7	15	19	70	4,2
RAINY RIVER.								
RAINY RIVER VALLEY AGR. SOCIETY.								
Judge—J. D. McKenna, North Bay.								
Wm. Jewell, Aylesworth	Marquis..........	16	23	6	18	19	82	
Chas. Fisher, Emo	do	16	21	6	17	19	79	15,14
D. Nicholson, Devlin	do	16	20	6	17	19	78	1
F. W. Tummey, Emo	do	15	20	6	17	18	76	1
Geo. R. Sanderson, Big Fork ..	do	15	17	7	17	19	75	2,15
D. J. Allan, Emo	do	15	17	7	17	18	74	2,1
O. Cameron, do	do	14	17	7	17	18	73	1,15
W. B. Ogden, Aylesworth	do	15	17	7	15	18	72	10,15
Mrs. C. Larson, do	do	14	17	7	15	17	70	2,15
RENFREW.								
ARNPRIOR AGR. SOCIETY								
Judge—J. N. Sorley, Ottawa.								
W. P. Dillon, Arnprior	Marquis..........	18	24	7	16	22½	87½	
A. Russell, Jr., do No. 43	do	17	23	7	18	21½	86½	
Chas. Wallace, do R.R. 3	do	17	23	7	16	22	85	10
Wm. Young, do	do	15	22	7	18	20	82	10
F. A. Cavers, do	do	16½	20	7	17	21	81½	4
M. McLaren, do	do	16½	15	7	18½	23	80	2
Jas. Havey, do	do	15½	23	5½	12	21	77	10
COBDEN AGR. SOCIETY.								
Judge—S. G. Gourlay, Ottawa.								
A. Johnston, Cobden, R.R. 4	Marquis..........	19½	24½	9	19	22½	94½	
L. Cropley, do R.R. 5	do	19	24	8½	17	23½	92	
Samuel McLaren, do	do	17½	24	8	18½	21	89	
S. McMillan, do	do	17½	20½	8½	19	23	88½	
W. Burns, do	do	14	23	8½	19	21½	86	
Wm. McLellan, do R.R. 1	do	17	20	8½	17	20	82½	
Wm. McMillan, do R.R. 6	do	17	18	8	16½	21	80½	15
Thos. Smith, do R.R. 3	do	16	17½	9	17	20	79½	
Thos. F. Burgess, do R.R. 3	White Fife.......	15½	19	7½	17	20	79	
A. Collins, do	do	14½	19	7	16	16½	73	

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
RENFREW.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
NORTH RENFREW AGR. SOCIETY.								
Judge—G. W. Davidson Kemptville, R.R. 4.								
Jno. A. Brown, Beachburg	Marquis..........	17	22	8	19	22	88	10
Alex. M. Barr, do	do	17½	21	8	18	22½	87	17,4
Jno. Stevenson, do	do	16½	22	8	18	22	86½	4,15
G. McClelland, do	do	16	22	7½	17	23	85½	15,2
Wm. Headrick, do	White Fife.......	15½	24	7½	17	21	85	
Harris Brown, do	Marquis..........	16½	20	7½	18	22	84	
S. McClelland, do	do	15½	21	7	18	22	83½	2,4
A. Munroe, do	White Fife.......	14	23	9	18	19	83	10
Jos. Keyes, Westmeath, R.R. 2..	do	16	22	7½	18	19	82½	1
Robt. H. Fraser, Forester's Falls	Red Fife.........	14	22	7	15	18	76	4,3
RENFREW AGR. SOCIETY.								
Judge—Geo. R. Bradley, Kars.								
W. Galbraith, Renfrew, R.R. 3	Marquis..........	18½	24	9	19	23	93½	2
G. MacIntyre, do	do	18½	21	6½	19	23½	88½	10,15
J. M. Airth, do	Huron...........	16½	22	8	18	22	84½	§10,8,15
Jas. H. Fraser, Newfield	White Fife.......	15½	18	8	18	22½	82	4,12
J. B. McLaren, Renfrew	Marquis..........	16	17	8½	18	22	81½	1,11,4,10
R. B. Leitch, do R.R. 3	do	16½	18	7	17½	22	81	1,2,4
J. F. Gibbons, do R.R. 3	Red Fife.........	15½	21	8	14	22	80½	4,10.12
S. B. Mason, do R.R. 3	Marquis..........	14½	20	6½	18	20	79	10,4
T. F. Barnet, do	White Fife.......	14	15	7	18	19½	73½	1,4.8,10
WELLINGTON.								
ARTHUR AGR. SOCIETY.								
Judge—Jas. Boyd, Markham.								
Peter Birns, Arthur, R.R. 3	Wild Goose.......	17	16	9	18	22½	82½	1,2.15,14
Geo. Dodge, do R.R. 4	do	16	16	9	18	21½	80½	2,15,14,13
H. Cormack, do	do	15	16	9	17	21	78	2,15,4
Thos. B. Farrell, do	do	15	8	8	18	22½	71½	1,2,4,15
Wm. Hutchinson, do	Marquis..........	13½	11	7	19	20½	71	1,2.4,15
Jno. A. Henry, do	do	14½	9	7	18	22	70½	2,15,4,1
S. Farrell, do	do	13	14	7	15	21	70	2,15,4,5
CENTRE WELLINGTON AGR. SOCIETY.								
Judge—Wm. Hudd, Orangeville.								
Wm. Hutcheon, Rockwood, R.R.1	Marquis..........	17	16	8	19	17	77	
Jas. L. Benham, do R.R. 3	do	18	12	9	18	16	73	
Alex. Lindsay, Fergus, R.R. 2	do	14	15	6	18	19	72	
L. Armstrong, do	do	14	15	8	18	15½	70½	
J. H. Anderson, do	do	15	12	10	16	17	70	

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

SPRING WHEAT.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
WELLINGTON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
ROCKWOOD AGR. SOCIETY								
Judge—Jas. McLean, Richmond Hill.								
A. F. Auld, Guelph, R.R. 2	Marquis.........	16	23	7	19	21½	86½	
Jos. Gahan, Rockwood, R.R. 5	do	14½	22	7	19	21	83½	13
D. D. Gray, do R.R. 1	do	16	22	5	17½	20	80½	3,15
Neil McLean, do R.R. 4	do	13½	23	5	14	19½	75	
B. Shultis, do R.R. 2	do	13	14	7½	19	19½	73	11,13
H. Black, do R.R. 4	do	13½	16	7	16	19½	72	4,14,15
M. E. Burns, do R.R. 4	do	13½	12	6½	17	21	70	1,2,13
YORK.								
MARKHAM AGR. SOCIETY.								
Judge—Geo. W. Glover, Nottawa.								
Jno. Boyington, Gormley, R.R. 2	Goose............	17¾	25	9½	19¾	23¾	95¾	
J. S. Lawrie, Agincourt	Marquis.........	16	24½	9½	19½	22½	92	
W. P. Johnson, Stouffville, R.R.1	Wild Goose.......	16	10	7½	19¼	22¾	75½	2
J. I. Balsdon & Sons, Markham, R.R. 2	Goose............	16	9¾	7½	19¼	22¾	75¼	2,1
Jas. Torrance, Markham	Marquis.........	16	6½	9½	19	23	74	2,1,4
RICHMOND HILL AGR. SOCIETY.								
Judge—Geo. W. Glover, Nottawa.								
Jno. Young & Sons, Milliken ..	Marquis..........	18	25	7½	20	24	94½	
Jas. McLean, Richmond Hill ..	do	19¾	24¼	5	19¼	24¾	93	
Wm. G. Woods, Maple, R.R. 2	do	15	24	5	19½	23	86½	
T. B. Weldrick do R.R...	do	18	9½	5	19½	24	76	1,4
W. H. Welhman, Gormley, R.R. 2	do	18	9	5	19¾	24	75¾	1,4
G. H. Peplar, Richmond Hill ..	do	17½	9	5	19¼	24¾	75½	1,2,4
F. A. Clark, Gormley, R.R. 2 ..	Goose............	16	9	7½	19¾	23	75¼	2,4,1
J. Brillinger, Richmond Hill ..	do	14	12	7½	19½	22	75	4,2
H. Hammond, do ..	Marquis..........	14	9	9½	19½	21¾	73¾	1,4,2,10,9
Geo. Mathieson, Maple, R.R...	do	14	9½	7½	19½	22	72½	2,4
Robt. Walkington, do R.R. 2	do	16	9¼	5	18¾	23	72	1,4
T. E. Boynton, Gormley, R.R. 2	do	13½	9¾	5	19¾	22¾	70¾	4,2,1

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

BARLEY.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRANT.		(20)	(25)	(10)	(20)	(25)	(100)	
ONONDAGA AGR. SOCIETY.								
Judge—Geo. Sexsmith, Ridgeway.								
A. W. VanSickle, Onondaga	O. A. C. 21.......	17	21	9	20	23	90	12
D. B. Campbell, Cainsville, R.R. 2	do	17	22	9	18	23	89	15,4
R. J. Robertson, do R.R. 1	do	17	20	9	20	22	88	12,5
Jas. E. Walker, Caledonia, R.R. 2	do	15½	20	10	19	23	87½	10,15
Hy. Preiss, Onondaga	do	13	24	7	20	23	87	15
T. Thomson, Cainsville, R.R. 1	do	13½	23	8	20	22	86½	12
Geo. Thomson, do R.R. 1	do	15	18	9	20	14	86	12
Geo. E. Wood, do R.R. 1	do	18	20	7½	17	23	85½	10,12,15
M. N. Simpson, do R.R. 1	do	16	23	9	16½	20½	85	
A. W. Pate, Paris, R.R. 4	do	13	21½	8	20	22	84½	12,15
H. H. Howell, Cainsville, R.R. 1	do	18	14	9	20	23	84	12,15
C. W. Burrill, do R.R. 2	do	13	22	8	18	23	84	
DUNDAS.								
MOUNTAIN AGR. SOCIETY.								
Judge—J. D. McLennan, Lancaster.								
Wm. Clelland, S. Mountain	O. A. C. 21.......	19	23	9	18	25	94	
S. D. Thorpe, do	do	19	22	8	18	24	91	15
Wm. T. Timmins, Inkerman ..	do	16	20	9	18	22	85	2,7
Jas. Graham, S. Mountain	6 Rowed.........	15	20	8	18	21	82	2,7
Herb. Walker, do	O. A. C. 21.......	17	20	8	17	18	80	2,7
Froats Bros., do	do	16	20	8	15	20	79	7
R. K. Graham, do	do	14	18	10	19	16	77	2
G. Forester, do	do	13	18	5	18	20	74	7
Melon Bros., do	do	15	15	7	14	22	73	7
Wm. Higginson, Inkerman	do	14	20	9	10	19	72	2,7
HALTON.								
HALTON AGR. SOCIETY.								
Judge—Jas. McNeil, Maple.								
D. F. Ford, Milton	O. A. C. 21.......	17½	28	9	19	23½	92	
H. R. Frankland, Hornby	do	16½	22	7	16	21	82½	15

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, method of seeding, absence of lodging.

†Yield and quality of grain—Considering proportion of well-filled heads of plump grain of good quality and uniformity of maturity.

‡See key page.

§Points deducted for non-standard variety.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

BARLEY.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from weeds.	Freedom from smut, blight and insects.	Freedom from other varieties and other kinds of grain.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields
HALTON.—*Continued.*		(20)	(25)	(10)	(20)	(25)	(100)	
HALTON AGR. SOCIETY.—*Con.*								
Harry Richardson, Milton	O. A. C. 21......	16½	20	7½	16	21½	81½	15
G. E. Gastle, do	do	14½	20	8	18	20	80½	
W. N. Scott & Son, do	do	16	20	8	16	18	78	
A. W. Milne, do	do	14½	19	8	17	17½	76	2,15
Wm. R. Hume, do	do	16½	14	8	15	22	75½	2
C. A. McCann, do R.R. 4	do	15	20	8	12	19	74	
A. Stark, do	do	14	17	8	16	18	73	2,9
E. M. Readhead, do R.R. 2	do	15½	15	8	14	18	70½	2,15
PEEL.								
ALBION AND BOLTON AGR. SOCIETY.								
Judge—Jas. McNeil, Maple.								
Russell See, Bolton	O. A. C. 21......	16	23	8	18	21	86	15
W. E. Downey, do	do	16	21	9	18	21	85	2
Bert. Bishop, do R.R. 1	do	16	21	8	18	21	84	
F. J. Wakely, do R.R. 3	do	16	20	8	16	22	82	
M. J. Kehoe, do	do	15½	20	8	18	20	81½	9
Geo. Downey, do R.R. 2	do	16	22	8	14	19	79	
N. C. Downey, do	do	14½	20	8	17	18½	78	15
E. Armstrong, do	do	15	16	8	17	18	74	7,4
THUNDER BAY.								
OLIVER AGR. SOCIETY.								
Judge—G. W. Collins, B.S.A., Fort William.								
R. B. Martyn, Murillo	Mandscheuri.....	17½	23½	7	18	23	89	
Thos. Hughes, do	do	17½	22	9	14	22½	85	
Jos. Berube, Baird	do	15	23	9	15	20	82	
Harvey Gorton, Murillo	do	15	23	9	14	19	80	
Thos. Fawcett, Millar	O. A. C. 21.......	15½	19	8½	15	20	78	15
Sam. McNally, Murillo	Mandscheuri.....	15	15	7	18	20	75	1
Marshall Hennessey, Millar	do	12	16	9	15	18	70	15

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

ALSIKE CLOVER.

Competitors in Order of Merit.	Apparent yield and quality of crops as indicated by:					Freedom from noxious weeds mentioned in Seed Control Act.	Freedom from other weeds, grasses, etc.	Favorable conditions for harvesting the crop, absence of loose stones, etc.	Totals of scores.
	Height of crop.	Closeness of plants.	Vigor and healthy appearance of plants.	Evenness of crop over field.	Number of well-filled heads per plant containing plump seed. of good color.				
KENORA.	(15)	(15)	(5)	(10)	(15)	(25)	(10)	(5)	(100)
DRYDEN AGR. SOCIETY.									
Judge—R. E. Cumming, Emo.									
Thos. Lewis, Oxdrift	11	13	5	7	14	25	8	5	88
D. F. McKenzie, Eagle River ..	13	13	5	7	13	25	6	4	86
J. S. Corner, Oxdrift	10	13	5	7	13	25	6	5	84
E. W. Wice, Dryden	11	13	4	7	11	25	8	4	83
J. M. Hutchison, do	15	12	5	8	10	20	8	4	82
Robt. Skene, Oxdrift	14	11	5	8	10	20	8	4	80
Jos. Spalding, do	12	12	5	6	11	25	4	4	79
W. H. Martin, Dryden	8	10	3½	8	12	25	8	3½	78
C. Snider, Oxdrift	10	10	4	5	11	25	7	4	76
Wm. Devoe, do	10	11	4	5	10	25	6	4	75

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

PEAS.

Competitors in Order of Merit.	Name of variety	*General appearance.	Freedom from weeds.	Freedom from disease and insects as mildew, blight, weevil, worms, etc.	Purity of variety.	†Yield and quality of grain.	Totals of scores.	‡Weeds in competitors' fields.
BRUCE.		(20)	(15)	(20)	(15)	(30)	(100)	
EASTNOR AGR. SOCIETY.								
Judge—Archie Greer, Mansfield.								
A. Mielhausen, Lion's Head	Golden Vine......	18	13	19	14	27	91½	15
W. Bray, Sr., do	do	18	14	17	14	26	89	
S. L. Rutherford, do	do	18	12	18	14	26	88	2
R. E. Cameron, do	Can. Beauty......	17½	12	17	14	26	86½	2
J. A. Dickie, do	Golden Vine......	16½	13	16	14	25	84½	2
R. Shouldice, Barrow Bay	do	16½	12	16	14	24½	83	2,14
W. J. Bray, Lion's Head, R.R. 1	do	16½	12	15	14	25	82½	10
F. Cameron, do	Can. Beauty......	14½	12	15	12	25	78½	2,15
Jos. Bray, do	do	15	12	14	13	24	78	
A. Bray, do	Golden Vine......	14½	12	14	12	24	76½	
Jas. R. Cook, do	do	13	11	14	14	24	76	2
Chas. D. Shaw, Barrow Bay	do	14	12	14	13	23	76	15

*General appearance—Considering stand of crop, type of plant, vigor and uniformity of growth, and method of seeding.

†Yield and quality of grain—Considering number and size of pods per plant, uniformity of maturity and proportion of grain to straw.

‡See key page.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
CARLETON.		(20)	(5)	(20)	(15)	(40)	(100)
CARP AGR. SOCIETY.							
Judge—Peter Wilson, Cobden.							
E. H. Graham & Son, Carp	W. Cap. Dent....	18	5	19	14	36	92
Geo. Coldwell, do	Golden Glow.....	17	5	19	14	36	91
W. J. Johnston & Son, do	Wisconsin No. 7..	17½	5	18	15	34	89½
W. G. Rivington, do	Golden Glow.....	17	5	19	14	33½	88½
R. Rivington, do	do	14	5	18	14	37	88
W. J. Cavanagh, do	Wisconsin No. 7..	18	5	17	12	35	87
J. H. Wilson, do	Golden Glow.....	16	5	15	15	35	86
G. A. Hodgins, do	Leaming and Wisconsin No. 7....	16½	5	18	12	34	85½§
F. S. Coldwell, do	Golden Glow.....	16	5	15	12	35	83
F. G. Humphries, do	Wisconsin No. 7..	13	4	16	12	32	77
DURHAM .							
CLARKE TP. AGR. SOCIETY.							
Judge—G. A. Williams, Guelph.							
W. L. Smith, Orono	Wisconsin No. 7..	17½	5	19	15	36	92½
D. J. Gibson, Bowmanville	do ..	18½	5	17	14	36½	91
F. W. Rickard, Newcastle	W. Cap..........	18	5	18½	15	33	89½
C. L. Powers, Orono	Wisconsin No. 7..	17½	5	17½	15	32	87
W. S. Moffatt, do	Leaming........	17	5	18	15	31	86§
C. A. Chapman, do	Wisconsin No. 7..	17	4¾	17½	15	30½	84¾
I. T. Chapman, do	Golden Glow.....	17	5	17	15	28½	82½
Colin Colville, Bowmanville ...	Leaming........	19¼	5	16	15	24¾	80§
Hy. Jose, Newcastle	Eureka..........	18	5	15	15	25	78§
G. S. Wright, Orono	Wisconsin No. 7..	16½	5	15	15	25	76½
ELGIN.							
ALDBOROUGH AGR. SOCIETY.							
Judge Wm. Hickson, Bobcaygeon.							
D. A. Purcell & Sons, Wardsville, R.R. 1	W. C. Y. Dent....	18	3	19	15	36	91
J. A. King, Wardsville	do	18	4	18½	15	35	90½
D. F. McLean, do R.R. 1	do	18	4	18	15	35	90
A. E. Purcell, Rodney	Salzer's N. Dakota........	18	4	19	15	33½	89½
E. J. Purcell, Wardsville, R.R. 1	W. C. Y. Dent....	18	3	18	15	35	89
Albert Winger, do R.R. 1	do	18	2½	18½	14	35	88
C. F. Mistele, Rodney, R.R. 3..	Compton's Early.	17	4	18½	15	33	87½§

*General appearance—Considering uniformity and stand of crop, type of plant, and vigor of growth, and method of planting.

†Yield of fodder and grain—Considering quality and quantity of fodder, type as regards size, shape and yield of ears, size and depth of kernels, variety considered.

‡See key page.

§Points deducted for non-standard variety.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety	†Yield of fodder and grain.	Totals of scores.
ELGIN.—*Con.*		(20)	(5)	(20)	(15)	(40)	(100)
ALDBOROUGH AGR. SOCIETY.—*Con.*							
A. J. Leitch, Wardsville, R.R. 1	W. C. Y. Dent....	18	3	15	15	36	87
Norman Mistele, Rodney, R.R. 3	King Philip......	17½	4	19	15	31	86½§
A. MacColl, do R.R. 2	Wisconsin, R.R. 7	19	3½	15	15	34	86½
J. Hesenauer, do R.R. 5	Salzer's N. Dakota........	16½	4	19	15	31½	86
J. B. Buchan, do R.R. 2	8-rowed Yellow...	18½	3½	16	14	34	86§
W. A. Kelly, do R.R. 2	W. C. Y. Dent....	17	3½	17	15	33	85½
Wesley Havens, do R.R. 2	Wisconsin No. 7..	18	3	18	15	31	85
A. F. McGregor, Wardsville	W. C. Y. Dent....	16½	4	15	15	33½	84
Gordon Kelly, Rodney, R.R. 2	Compton's Early.	17	3½	17	15	31	83½§
W. B. Lancaster, do R.R. 1	Longfellow......	17	3½	15	15	33	83½
W. M. Kelly, do R.R. 2	do	16½	4½	14	15	32½	82½
Emerson King, Wardsville, R.R.	do	16½	3	15	15	34	83½
Roy Blaine, do R.R. 1	8-rowed Yellow...	17	3	14	15	34	83§
J. Downie & Son, Rodney, R.R. 1	Longfellow......	17	3½	16	15	31	82½
Earl Huffman, do R.R. 3	W. C. Y. Dent....	16½	4½	16	15	30	82
S. King, Wardsville, R.R. 1....	W. C. Y. Dent....	16½	3	14	15	33½	82
J. A. McLean, Rodney, R.R. 2	Salzer's N. Dakota........	16½	4	16	15	30	81½
Amos A. Kelly, do R.R. 2	W. C.Y. Dent.....	16½	3½	15	13	33	81
A. Wehlann, do RR. 2	Strawberry Dent.	16	3½	15	15	31	80½§
A. Purcell, Wardsville, R.R. 1..	W. C. Y. Dent	17	3	17	11	31	79
Russell Anthes, Rodney, R.R. 2	Longfellow......	15½	4	15	15	29	78½
D. Shaw, do R.R. 1	....	16½	3½	15	13	30	78
Whitney Kelly, do R.R. 2	8- and 12-rowed Yellow........	16	4½	17	7	29	73½§
STRAFFORDVILLE AGR. SOCIETY.							
Judge—C. Schuyler, Woodstock.							
R. F. Humphrey, Straffordville..	Compton's Early.	18¼	4¼	18	14¼	38¼	93§
W. F. Pound, Aylmer, R.R. 1 .	Imp. Leaming....	17	4	17	14	37	89
Leslie High, Straffordville, R.R.1	W. C. Dent.......	17½	3	18	13	37¼	88¾
Earl Godby, do R.R. 1	do	16¾	4½	17½	13½	36	88¼
Wm. Abell, Aylmer, R.R. 1	Leaming........	17¼	3	17	14	36½	87¾§
N. H. McConkey, Straffordville R.R. 1	do	17¼	3¼	17⅓	14½	34	86⅓§
F. Procunier, do R.R. 1	Golden Glow.....	16¾	3¼	17	14	35¼	86¼
H. Yeandle, do R.R. 1	W. C. Dent.......	16¼	4	16¼	14¼	35¼	86
Ed. Knott, Aylmer, R.R. 1	Leaming........	15¼	4	17	14	34½	84¾§
E. Hatch, Eden, R.R. 1	W. C. Dent.......	15	3	17	13½	34½	83
Elijah Sitz, Aylmer, R.R. 1	Leaming........	18¾	4	19	14	21	76¾§
W. ELGIN AGR. SOCIETY							
Judge—C. Schuyler, Woodstock.							
S. M. Pearce, Fingal	W. C. Y. Dent....	18¾	4	18	14¾	38½	94
W. S. Pearce, Wallacetown	Gold Nugget.....	19	4	18	14½	38¼	93¾§
S. L. Pearce, do	Longfellow......	18½	4¼	18	14½	38¼	93½
E. H. Pearce, do	do	17½	4½	18	14½	38	92½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
ELGIN.—*Continued.*		(20)	(5)	(20)	(15)	(40)	(100)
W. ELGIN AGR. SOCIETY.—*Con.*							
D. Carrol, Iona Sta., R.R. 1	Golden Glow.....	18	3¾	18	14	38¼	92
Archie Lunn, Wallacetown	Yellow Dent.....	18	4	18	14	37	91
Jonas A. Page, do	Longfellow......	16½	4¾	18	14½	37	90¾
Harold Green, do	Huron Dent.....	17	4½	18¼	14	35½	89¼§
D. A. Clarke, do	Mixed Longfellow	17	4¼	18	12	37½	88¾
E. S. Backus, do	Longfellow......	15¾	4½	17½	14¼	36¾	88¾
Jno. Lynch, do	W. C. Y. Dent....	15½	4½	18	14	34½	87½
Jas. Page, do	Smut Nose.......	18½	4¼	18	9	37	86¾§
Geo. Nott, Fingal	Longfellow......	14¾	4¼	18½	13	35	85½
A. A. Gow, Wallacetown	W. C. Y. Dent....	16	4½	17	14	33½	85
Dan. Graham, Dutton	W. C. Dent.......	15	4	17	13	35	84
Hy. Garbutt, Wallacetown	W. C. Y. Dent....	14	4½	17	14	33½	84
E. V. Docker, do	Longfellow......	13	4	15	14	31	77
Jas. Lunn, do	Y. Dent.........	14	4	17	4	34	73
J. Trothen & Sons, do	W. C. Y. Dent....	15¾	4¼	......	14½	36¼	70¾
ESSEX.							
AMHERSTBURG AGR. SOCIETY.							
Judge—R. J. Wilson, Charing Cross.							
W. J. Sellars, Amherstburg, R.R.1	Wisconsin No. 7..	19½	4½	19	14¾	37¾	95½
Ed. Deneau, North Malden	do ..	19¼	4½	19½	14	37	94¼
E. Langlois, Amherstburg, R.R. 1	do ..	18¾	4½	19½	12½	35¾	91
W. A. Bailey, do R.R. 1	do ..	18½	4½	17½	14	36	90½
Thos. Deslippe, do R.R. 1	do ..	16½	4¾	19¾	14¼	33¼	88½
Forest Pigeon, North Malden ..	do ..	17½	4½	17¾	13¾	34	87½
F. Pettypiece, Amherstburg	do ..	17	4½	19½	14	32	87
R. Langlois, do R.R. 1	do ..	18	4¼	16¾	12½	34½	86
E. Deslippe, North Malden	do ..	16½	4½	19¼	14	31½	85¾
M. Deneau, do	do ..	16¼	4½	18	13	33	84¾
W. C. Anderson, Amherstburg, R.R. 2	Bailey..........	17½	4½	14	14	32½	82½
Jas. Martin, do R.R. 1	....	16¾	4½	16	14	30½	81¾
COMBER AGR. SOCIETY.							
Judge—R. J. Wilson, Charing Cross.							
B. R. Cohoe, Woodslee	Wisconsin No. 7..	18¼	4½	19¼	14½	36¼	92¾
A. D. Gagnier, Tilbury, R.R. 4	Golden Glow.....	18¾	4¾	18¾	14½	35½	92¼
Thos. White, Staples	Gold Medal......	18¾	4¼	19¼	12½	33¾	88½§
H. J. Smith, Comber	Bailey...........	17	4½	18	14	34¾	88¼
R. B. Keith, do	do	16½	4¾	19½	14	33	87¾
Alphonse Caza, Tilbury	Leaming........	18	4½	18	14	32½	87§
Arthur Taylor, Comber	do	17½	4¾	17¾	14	31½	85½§
Victor Mailloux, do	Gold Medal......	18¼	4	16	12½	34¼	85 §
T. G. Breen, do	do	16¾	4½	18½	13	31½	84¼§

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
ESSEX.—*Continued.*		(20)	(5)	(20)	(15)	(40)	(100)
COMBER AGR. SOCIETY.—*Con.*							
W. H. White, Staples	Gold Medal......	17¼	4	19½	12½	30¾	84§
Ben Brown, Comber	Bailey...........	16¼	4	17¼	13¾	32½	83¾
T. W. Taylor, do	White Cap.......	15¾	4½	17¾	13¼	30½	81¾
A. G. Hiser, do	Bailey...........	17¼	4¼	14	13	33	81½
J. H. Deitrich, do	Wisconsin No. 7..	15	4¾	17	14¾	28½	80
E. J. Hiser, do	Leaming........	15¾	4½	14	14	27¾	76§
GLENGARRY.							
ST. LAWRENCE VALLEY AGR. SOCIETY.							
Judge—J. H. Wiggins, Kemptville.							
J. J. Dingwall, Williamstown ..	Ensilage........	16	3	17	13	33	82§
J. H. Goodfellow, Lancaster	do	17	3	17	12	31	80§
D. A. Ross, Martintown	do	15	3	14	14	32	78§
A. A. McLennan, Lancaster	do	15	4	15½	12	31	72½§
F. Robertson, Williamstown ...	do	14	3	16	13	31	77§
W. Ross, Martintown	do	15	4	16	13	28	76§
Alex. McDonald, Summerstown .	do	13	3	14	12	33	75§
J. D. McLennan, Lancaster	do	13	4	15	13	25	70§
GREY.							
HOLLAND AGR. SOCIETY.							
Judge—Andrew Schmidt, Mildmay.							
Geo. Milson, Chatsworth, R.R. 3	W. Cap..........	19	4	19½	15	37	94½
E. P. Hammill, do R.R. 4	do	18½	5	19	15	36½	94
R. Farley, Holland Centre, R.R.3	do	18¼	5	18½	15	36½	93¼
J. McDonald, Chatsworth, R.R. 3	do	18	4	20	14½	35½	92
Thos. McComb, do R.R. 1	Imp. Leaming...	17½	5	19	13	34½	89§
Chas. Finn, do R.R. 3	Compton's Early.	17½	3½	18	14	32	85§
W. E. McComb, do R.R. 1	do ..	18	5	17	11	31	82§
Wm. Carson, Owen Sound, R.R. 4	W. Cap..........	17½	5	16	10	32½	81
Mac. Cameron, Chatsworth	do	18¼	4	16	13	29½	80¾
W. Hamilton, Owen Sound, R.R.4	do	17	4	14	14½	31	80½
W. Macfarlane, do R.R. 6	Bailey...........	14½	4½	19½	10	28½	77
KEPPEL AGR. SOCIETY.							
Judge—Alex. McKague, Teeswater.							
Wallace Bros., Kemble, R.R. 2	....	18½	5	19	13	35	90½
Geo. McKenzie, do	Wisconsin No. 7..	18	5	19	14	32	88
Jno. Taylor, do R.R. 1	W. C. Dent.......	18	5	19	12	33	87

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
GREY.—*Continued.*		(20)	(5)	(20)	(15)	(40)	(100)
KEPPEL AGR. SOCIETY.—*Con.*							
Luther Beckett, Kemble	....	16½	5	19	14	31	85½
Homer Hurlburt, do R.R. 2	....	16½	4	19	13	32	84½
Jno. McGregor, do	Wisconsin No. 7..	17½	4½	16	14	32	84
Wycliffe Davidson, do	....	15½	5	16	14	31	81½
Chas. Garvie, do	....	15½	4½	18	12	31	81
Adam Taylor, do	....	16½	4½	15	12	32½	80½
Douglas Davidson, do R.R. 1	....	15½	4	17	12	31	79½
L. Danard, do R.R. 1	Leaming.........	14½	4½	16	12	29	76§
Vanstone Bros., do	Longfellow.......	14½	4½	18	12	26	75
F. Davidson, do	Leaming.........	12½	4	16	11	29	72½§
KILSYTH AGR. SOCIETY.							
Judge—Alex. McKague, Teeswater.							
G. P. Kennedy, Tara, R.R. 5....	Ensilage.........	18	5	19	13	36	91§
B. Porteous, Owen Sound, R.R. 3	do	18	4	18	14	36½	90½§
Albert Fleming, Tara, R.R. 5 ..	do	17½	5	19	13	35	89½§
O. R. Smith, Owen Sound, R.R. 4	do	18½	5	16	13	36	88½§
Alb. Thompson, do R.R. 4	do	17	5	18	14	33½	87½§
R. S. Mundle, do R.R. 3	do	18	4½	18	13	33¾	87¼§
Hy. Breen, Tara, R.R. 5	do	17½	5	19½	13	32	87§
A. S. Donald, do R.R. 5......	do	18	4½	19	13	32	86½§
V. Barber, Owen Sound, R.R. 4	do	18½	4½	18	13	31	85§
W. H. Marshall, do R.R. 5	do	16	4½	18	13	31	82½§
G. Wyllie, Kilsyth	do	17½	5	16	13	30	81½§
W. Garvie, Tara, R.R. 4	do	14½	5	19	13	27	78½§
T. Elliott, Owen Sound, R.R. 5..	do	12	4	17	13	27	73§
WALTER'S FALLS AGR. SOCIETY.							
Judge—And. Schmidt, Mildmay.							
David Reid, Chatsworth, R.R. 5	W. Cap..........	19	4½	19	14½	37	94
E. W. Quinton, Walter's Falls..	Wisconsin No. 7...	19	4½	18	14	35½	91
Robt. King, do ..	do ...	18¼	4½	18½	14½	35	90¾
Jno. Thom, do ..	do ...	17½	4½	17	13	35½	87½
R. A. Hanna, do ..	do ...	18½	4½	18	14	32	87
Geo. I. Reid, Goring	do ...	17	4	16	14	34½	85½
C. W. Saunders, Walter's Falls..	W. & Y. Dent.....	18	4½	13	12½	34½	82½
J. E. Shepherdson, Markdale, R.R. 3	Wisconsin No. 7..	17	4½	14	12	33½	81
Alfred Ward, Walter's Falls ...	do ...	18	4½	8	13½	35	79
Wm. Henry, Markdale	do ...	15	4½	8	13	36	76½

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
HASTINGS.		(20)	(5)	(20)	(15)	(40)	(100)
STIRLING AGR. SOCIETY.							
Judge—Geo. B. Little, Agincourt.							
C. W. Thompson, Stirling......	Leaming.........	17½	5	19	14	34½	90§
Michael Shea, do	Bountiful........	17½	4½	19	14	33½	88½§
C. M. Sine, do R.R. 1	do	16	4½	16	14	32½	83§
W. J. Haggerty, do	Golden Glow.....	16½	4½	16	14	31	82
Jas. A. Bailey, do	....	15	4½	15	14	30½	79
E. D. Morrow, do	Wisconsin No. 7..	15½	4½	13	14	30½	77½
Geo. Drewry, Harold	....	14½	4½	15	14	28	76
A. M. Bush, Stirling	Leaming.........	15½	4½	13	14	28	75§
W. T. Sine & Son, do	....	14½	4½	14	13	28½	74½
Roy Walker, Harold. R.R. 2	Wisconsin No. 7..	14	4½	12	14	28	73
T. J. Thompson, Stirling	....	14	4½	13	14	26	71½
KENT.							
E. KENT AGR. SOCIETY							
Judge—Lyman Pansley, St. Thomas, R.R. 2.							
R. J. Shaukee, Thamesville, R.R.	W. C. Dent.......	20	4	19	14	37½	94½
Jas. Winter, do	do	19½	4	19	14	36½	93
Jno. A. Dick, do	do	17½	4	19	14	35	89½
P. Cameron, do	do	17	4	18½	14	35	88½
Jno. Buchanan, do	Dent.............	17	4	18	14	35	88
W. Featherston, do	W. C. Dent.......	17	3	18½	14	35	87½
S. L. Holmes, Northwood	Longfellow.......	17	4	18½	13½	34	87
H. Hetherington, Thamesville ..	W. C. Dent.......	17½	4	17	14	33½	86
Wm. Dunlop, do	N. Dakota........	17	4	18	13½	32½	85
Percy Secord, do	W. C. Dent.......	16½	4½	17	13	33	84
P. A. McAlpine, do	do	17	4	16½	13	33	83½
J. B. McDowell, do	do	15	4	16	13	33	81
Dan Winter, Northwood	do	15	4	15	13	32½	79½
Robt. George, Thamesville	do	15½	4	14	12	31½	77
HARWICH AGR. SOCIETY.							
Judge—G. A. Williams. Guelph.							
DENT CORN.							
H. McColl. Blenheim, R.R. 4	W. Cap..........	19½	4½	19	15	38	95¾
J. D. McPherson, do R.R. 1	Delaware........	19¼	4	20	15	35¼	93½§
D. M. Campbell, do R.R. 4	Bailey..........	19	4½	17	15	37½	93
Lorne Campbell, do R.R. 4	do	18¼	4¾	19	15	35½	92½
Reg. Grist, do R.R. 4	Wisconsin No. 7..	19¼	4	17½	15	36	91¾
Jno. Clayton. Harwich, R.R. 4	Bailey..........	18	4½	18½	15	34	90
Thos. Pegg, Blenheim. R.R. 3....	W. Cap..........	18½	4	15	15	37	89½

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
KENT.—*Continued.*		(20)	(5)	(20)	(15)	(40)	(100)
HARWICH AGR. SOCIETY.—*Con.*							
R. J. Wilson, Charing Cross ..	Wisconsin No. 7...	17	4	19	15	33½	88½
J. B. Clark, Blenheim, R.R. 3	W. Cap..........	18	4½	18	15	32½	88
Herb. Muckle, do R.R. 2	do	17½	4½	18½	15	32	87½
Wm. Knight, do R.R. 8	do	17	3	18	15	34	87
Gordon Stenton, Mull	do	17½	4	18½	15	31½	86½
Carmen Voll, Blenheim, R.R. 2	do	17	4	17½	15	32	85½
A. W. Wiley, do R.R. 2	do	17	4	16	15	33	85
Jas. Bonner, do R.R. 6	do	17	3½	17	15	32	84½
R. J. Allison, Charing Cross ...	do	15	4	18	15	32	84
Hy. Arnold, Blenheim, R.R. 2	do	16½	3	18	15	30½	83
Edgar Mallory, do R.R. 2	do	16½	4	12	15	33	80½
Milo Pardo, do R.R. 3	Wisconsin No. 7...	15	4	13	15	31	78
R. W. Knister, do	Bailey..........	15	3½	12	15	30½	76
HARWICH AGR. SOCIETY.							
FLINT CORN.							
Judge—G. A. Williams, Guelph.							
R. J. Johnson, Chatham, R.R. 3	Longfellow.......	19½	4½	19½	15	37½	96
A. S. Maynard, do R.R. 3	Salzer's N. Dakota.........	18¾	4¼	19	15	37½	94½
E. A. Richardson, do R.R. 3	Longfellow.......	18	4½	19	15	36½	93
W. T. Pegg, do R.R. 3	do	18¾	4¼	19	15	34	91
Gordon Clark, Blenheim, R.R. 3	Salzer's N. Dakota.........	17½	4	18	15	34½	89
W. W. Griffith, do R.R. 4	Longfellow.......	17	4	18	15	33	87
E. Crummer, do R.R. 2	King Philip......	18½	4	18	12	33	85½§
Isaac Jackson, Chatham, R.R. 3	Longfellow.......	16½	4½	15	15	31½	82½
W. B. Sterling, Blenheim, R.R...	do	17¼	4½	15	15	28½	80¼
R. W. Knister, do R.R...	do	14½	4	15	15	26	74½
HOWARD AGR. SOCIETY.							
Judge—Jas. Pullin, Woodstock.							
Jno. Miller, Thamesville, R.R. 4	W. C. Dent.......	19½	4½	19½	15	39	97½
Hy. Wright, Northwood, R.R. 3	do	19	4	20	15	38½	96½
Jno. Mason, Ridgetown, R.R. 2..	Wisconsin No. 7...	17½	4½	19	14	37	92
C. West, Northwood, R.R. 3	Longfellow.......	15	4	18	14	39	90
A. Calton, do R.R. 3	W. C. Dent.......	15	3	18	15	38	89
D. R. McDiarmid, Ridgetown, R.R. 2	Leaming.........	16½	4	18	14	36	88½§
F. McGregor, do R.R. 2	W. C. Dent.......	15	4	18	14	36	87
G. F. Simpson, do R.R. 1	Leaming.........	17	4	18	14	31½	84½§
Geo. Brien, do R.R. 2	Longfellow.......	15	4	16	14	31	80
W. Simpson, do R.R. 1	W. C. Dent.......	14	3	18	13	31	79
J. S. Clark, do R.R. 3	Longfellow.......	14	3½	18	13	29	77½
J. McDiarmid, do R.R. 2	W. C. Dent.......	15	3	10	13	35	76
J. D. Brien, do	do	14	3	11	13	34	75

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
KENT.—*Continued.*		(20)	(5)	(20)	(15)	(40)	(100)
HOWARD AGR. SOCIETY.—*Con.*							
E. Smith, Ridgetown, R.R. 3	W. C. Dent.......	13½	3	17	10	31	74½
F. H. Clarke, do R.R. 2	8-rowed Yellow...	15	4	10	13	32	74⅞
F. Gosnell, do R.R. 3	W. C. Dent.......	16	3	9	12	33½	73½
G. Clarke, do R.R. 3	Longfellow.......	15	3	8	13	33	72
A. Brien, do	W. C. Dent.......	15½	3	15	13	25	71
P. B. Campbell, do R.R. 3	Longfellow.......	15	4	18	5	28	70
ORFORD AGR. SOCIETY.							
Judge—Lyman Pansley, St. Thomas, R.R. 2.							
R. A. Newman, Muirkirk, R.R. 2	Dent.............	20	4	19	15	37	95
E. Gosnell, Highgate, R.R. 2	W. C. Dent.......	18½	4	19	15	36½	93
W. W. Scott & Sons do R.R. 2	do	17	4	18½	14	36	89½
Jno. Wade, do R.R. 2	do	16½	4	18	13½	35½	87½
W. Littlejohn & Son, Highgate, R.R. 2	Flint............	17	4	17½	13	35	86½
M. Attridge, do	Dent.............	16½	4	17½	13	35	86
J. A. Bishop, Muirkirk, R.R. 2..	do	16	3	18	13	35	85
J. F. Stone, Highgate, R.R. 2 ..	W. C. Dent.......	16	3½	18	12½	23	83
R. J. Newman, Muirkirk, R.R. 2	do	15	3½	17	12½	33½	81½
J. Schweitzer, Highgate	do	15	4	17	12	32½	80½
J. Snobeden, do	Flint............	14½	4	16½	13	32	80
P. Clark & Sons, do R.R. 2	do	15	4	16	14	30	79
J. Wootton, Thamesville, R.R. 3	Dent.............	14	4	15	14	29½	76½
Thos. Wootton, do	do	13½	4	13	10	29½	70½
WALLACEBURG AGR. SOCIETY.							
Judge—W. P. Hinman, Toronto.							
W. McCreary, Wallaceburg, R.R.2	W. Cap...........	19¾	4½	17	14¼	37	92½
Jno. Coveney, Electric R.R. 1 ..	Bailey...........	20	4¼	16½	13½	38	92¼
D. L. McCreary, Wallaceburg, R.R. 2	do	19	4½	17	14½	37	92
H. Handsor, Electric, R.R. 1....	Wisconsin No. 7...	20	4½	16½	14¼	36½	91¾
Hy. Forbes, Tupperville, R.R. 3	W. Cap...........	20	4½	16	14½	36½	91½
Dan. Coveney, Electric, R.R. 1..	Wisconsin No. 7...	19¼	4½	17	14½	35½	90¾
Joe Coveney, do R.R. 1..	Golden Glow.....	19¾	4½	15½	14	36½	90¼
J. M. Langstaff, Tupperville, R.R. 3	W. Cap..........	19	4½	17	14	35½	90
G. Nickle, Wallaceburg, R.R. 2	do	19¼	4½	16	14	36	89¾
P. Crowe, do R.R. 5	do	18½	4¼	16	14½	36¼	89½
G. Hazzard, do R.R. 5	Wisconsin No. 7...	19¼	4¾	15½	14	36	89½
C. Crowe, do R.R. 5	W. Cap...........	19	4½	16	15	35	89½
W. C. Gordon, Electric, R.R. 1	do	18	4	16	15	35½	88½
D. Crawford, do R.R. 1	Yellow Dent......	18¼	4½	15	14	36	87¾
Alf. Fry, Wallaceburg, R.R. 1..	Bailey...........	18¼	4¼	15	14½	33	85

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
LAMBTON.		(20)	(5)	(20)	(15)	(40)	(100)
BROOKE AND ALVINSTON AGR. SOCIETY.	[illegible]						
Judge—G. B. Little, Agincourt.							
Jas. Hand, Alvinston, RR 4	Golden Glow......	18½	4	19½	14	33½	89½
Duncan Conn, do R.R. 4	do	18	4½	16½	14	33	86
T. H. Lovell, do R.R. 4	Wisconsin No. 7...	17	4½	18½	14	31½	85½
W. J. Weed, do R.R. 7	Golden Glow......	16½	3½	14	14	29	77
T. Braithwaite, do R.R. 4	W. C. Y. Dent.....	16	4	15	13	28	76
Geo. Lightfoot, do R.R. 2	Golden Glow......	14½	3½	18	14	23½	73½
Jas. McCallum, do R.R. 4	W. C. Y. Dent.....	15½	4½	10	13	30	73
Isaac Linton, do R.R. 4	Smut Nose.......	16	4½	14	13½	23½	71½[illegible]
L. W. Oke, do R.R. 2	Golden Glow.....	15	3½	13	14	75½	71
FLORENCE AGR. SOCIETY.							
Judge—G. B. Little, Agincourt.							
D. H. Currie, Florence, ...	Wisconsin No. 7...	17	4½	18	14	34	87½
Hy. Paul, do R.R. 3	W. C. Dent.......	17½	4½	19	14	31½	86½
Jno. Gould, Croton, R.R.	Early Butler.....	17	4½	17	14	31½	84[illegible]
B. Harris, Thamesville	Imp. Leaming....	16½	4½	13½	14	32½	81[illegible]
Jno. Buchanan, do	Wisconsin No. 7..	15	4½	15½	14	31	80
Donald Brown, do	do ...	16	4½	15	14	29½	79
W. McFadden, Florence, R.R. 3	do ...	15½	4½	14	14	29½	77½
C. E. Bodkin, Thamesville, R.R. 2	do ...	15½	4½	14	14	28½	76½
D. H. Coneybeare, do R.R. 2	Early Rochester..	15	4½	15	14	26½	75[illegible]
Buchanan & Ferguson, Oil Spr'gs	Wisconsin No. 7...	15	4½	15	13	26½	74
D. Buchanan, Thamesville, R.R.2	do ...	15½	4½	12	13	27	72
Jas. Buchanan, do	do ...	14½	4½	10	14	27½	70½
SOMBRA AGR. SOCIETY							
Judge—W. P. Hinman, Toronto.							
Hy. Sheller, Pt. Lambton, R.R. 2	Wisconsin No. 7..	19¾	4½	18½	14½	36½	93¾
F. Burgess, Sombra, R.R. 3	W. Cap..........	19¼	4½	18	14½	35	91¼
Bert Payne, Pt. Lambton, R.R. 2	Wisconsin No. 7..	19¼	4½	17½	14	35	90¼
Jno. McRae, do R.R. 2	W. Cap..........	19¼	4¼	16	14½	35½	89½
J. Johnston, do R.R. 1	W. Dent.........	18½	5	17½	14	33	88[illegible]
W. Stenton, do R.R. 2	W. Cap..........	14¼	4¾	15	14½	34¼	87¾
J. C. Reid, Wallaceburg, R.R. 5	Wisconsin No. 7..	18½	4½	17	14½	33	87½
J. E. Dupuis, Sombra, R.R. 3..	....	17	4½	15	15	33	84½
J. C. McMillan, Pt. Lambton, R.R. 2	Bailey..........	17	4½	10	15	28	74
LEEDS.							
BROCKVILLE AGR. SOCIETY							
Judge—J. H. Wiggins, Kemptville.							
L. J. Davison, Brockville	Wisconsin No. 7..	16	4	17	14	32	83
W. H. McNish, Lyn	W. Cap Dent......	15	3	17	14	33½	82½
Michael Foley, do	do	15	3	16	13	35	82

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
LEEDS.—*Continued.*		(20)	(5)	(20)	(15)	(40)	(100)
BROCKVILLE AGR. SOCIETY.—*Con.*							
C. H. McNish, Lyn	Ensilage.........	15	4	16	13	32	80§
J. Hudson & Son, do	do	15	4	14	13	33	79§
D. Johnson & Son, Rocksprings.	Salzer's N. Dakota........	13	4	17½	13	30	77½
H. J. Willows, Lyn	....	14	2	16	13	32	77
V. W. Brown, do	Golden Glow.....	13	3	15½	13	32	76½
A. J. Bushfield, Mallorytown ...	Ensilage.........	13	3	16	13	31	76§
E. H. Easton, Lyn	do	13	3	15	13	29	73§
J. W. Stewart, do	Eureka..........	12	3	15	12	31	73§
J. S. Moore, Bellamy, R.R. 1....	....	12	3	14	13	29	71
LINCOLN.							
NIAGARA TOWN AND TP. AGR. SOCIETY.							
Judge—W. Hickson, Bobcaygeon.							
J. D. Cooper, Niagara-on-the-Lake	Longfellow......	18½	5	17½	15	36	92
R. G. Dawson, do R.R. 2	Dakota White....	19	4½	19	15	34	91½§
W. H. Sheppard, do R.R. 1	Gold Nugget.....	18½	5	18	15	34	90½§
C. H. Buftan, do R.R. 1	Longfellow......	18	5	18	15	31½	87½
T. E. Hiscott, do R.R. 2	do	17½	4½	17	15	32½	86½
J. R. Murray, do R.R. 2	Dakota White....	16½	5	18	15	31½	86§
C. S. Knox, do R.R. 2	do	16½	5	17½	15	30	84§
Hiscott & Lavell, do R.R. 2	do	15½	5	17½	15	29	82§
J. A. High, do R.R. 2	King Philip......	16	5	17	15	28½	81½§
Nelson Stevens, Virgil	Longfellow......	15½	5	19	15	26½	81
A. C. Taylor, Niagara-on-the-Lake, R.R. 1	do	16	5	17½	15	27	80½
Percy Lees, do	do	15	5	16½	15	28½	80
Raymond Shaw, do R.R. 2	do	15½	5	16	15	28	79½
MIDDLESEX.							
LONDON TP. AGR. SOCIETY.							
Judge—Jas. McLean, Richmond Hill.							
W. T. Williams, Ilderton, R.R. 2	W. C. Y. Dent....	19	4	19	14	37	93
E. T. Caverhill, do R.R. 1	Wisconsin No. 7..	18	4	19	14	37	92
Geo. Carter, do R.R. 4	Golden Glow.....	19	4½	17	14	37	91½
Jno. Arnitt, Hyde Park	Wisconsin No. 7..	19	4	18	14	36	91
P. L. Graham, Ilderton, R.R. 2	Leaming........	18½	4	19	14	35	90½§
G. E. Sinker, do R.R. 2	W. C. Y. Dent.....	17	4	16½	14	36	87½
J. A. Campbell, do R.R. 2	W. C. and Red Cob, Ensilage..	15	4½	19	14	34½	87§
Jas. Smibert, Ettrick	Wisconsin No. 7, & W. C. Y. Dent.	15½	4½	16½	14	34	84½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
MIDDLESEX.—*Continued.*		(20)	(5)	(20)	(15)	(40)	(100)
LONDON TP. AGR. SOCIETY.—*Con.*							
W. A. Rosser, Denfield, R.R. 1	Bailey & W. Cap..	15½	3½	18½	13	33½	84
F. H. Rosser, do	Bailey & Butler...	15½	4	17	14	31½	82§
Rich. Cunningham, do	W. Cap & Butler..	15	4	16½	14	32	81½§
C. W. Hobbs, do	Wisconsin No. 7..	14¾	4¼	14½	14	33	80½
L. G. McLary, London, R.R. 2..	do ...	14½	4	15	14	32½	80
Theo. McKean, Ilderton	do ...	14	4	15	13½	32	78½
Geo. Long, Komoka	Ensilage.........	13½	4	15	13	31½	77§
NORFOLK.							
COURTLAND AGR. SOCIETY							
Judge—Robt. Berry, St. Mary's.							
A. Cowan, Courtland	Golden Glow.....	19½	4½	19½	15	33½	92
R. G. Herron, Delhi, R.R. 3.....	Wisconsin No. 7..	19½	4	19	15	33½	91
Jacob Munn, Courtland, R.R. 2	do	18	4	16	15	36	89
Isaac Atkinson, do	Golden Glow.....	17½	4	19½	15	32½	88½
V. McDonald, Tillsonburg, R.R. 1	W. Cap..........	17	4	18	15	33½	87½
Hy. Fisher, do R.R. 2	do	14½	4½	19	15	33½	86½
J. T. Simmons, Courtland	do	16½	4½	18	15	31	85
J. F. Robinson, do	do	17	4½	20	15	26½	83
G. A. Ronson, do	Golden Glow.....	17	4	10	15	35	81
C. Birdsall, do R.R. 1	W. Cap..........	15	4½	20	15	25½	80
W. E. Sandham, Tillsonburg, R.R.	do	15	4	10	15	26½	70½
NORFOLK CO. AGR. SOCIETY.							
Judge—R. H. Abraham, Chatham.							
Lorne Forest, Nixon, R.R. 2 ..	Golden Glow.....	18	4	19½	14½	38½	94½
J. E. Wilson, Delhi, R.R. 2	Pride of Nistah...	17½	4	18½	14½	38	93½§
Alonzo McKnight, Charlotteville	Golden Glow.....	18	4	19½	14	37½	93
J. Leadham, St. Williams	do	17	4	19	13½	38½	92
Wm. Hunter, Langton	Wisconsin No. 7..	15	4	19	13	37	88
G. O. Boughner, Simcoe, R.R. 2	Smut Nose.......	16	4	19	14	34½	87§
Benson Hall, do R.R. 2	White Flint......	14	4	18	14	34½	84½§
N. WALSINGHAM AGR. SOCIETY.							
Judge—Jas. Pullin, Woodstock.							
W. S. Collings, Courtland	W. C. Dent........	18	4	19	14	36	91
W. Willet, do	King Philip......	17	5	19	15	34	90§
G. McDowell, do	W. C. Dent........	18½	3½	19½	14	34	89½
Chas. Brandon, do	do	17	4	20	12	33	86
F. E. Doan, do	do	16	5	20	13	31	85
A. J. Rogers, do	Golden Glow.....	13	3	20	14	34	84
W. H. Hunter, do	W. C. Dent........	17½	2	20	14	30	83½
Chas. Swain, do	do	15	5	20	12	26	78
G. B. Robinson, do	do	13	5	18	12	27	75
J. E. Kelly, do	King Philip......	13	3	20	10	28	74§
Jas. Stuart, do	Smut Nose.......	12	2	16	13	27	70§

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
NORTHUMBERLAND.		(20)	(5)	(20)	(15)	(40)	(100)
SEYMOUR AGR. SOCIETY.							
Judge—G. B. Little Agincourt.							
T. Dunham, Campbellford, R.R. 4	Ensilage.........	17½	4½	15	14	34	85§
W. W. Whitton, do R.R. 3	Bountiful........	17	4½	16	14	31½	83§
Robt. Innes, do R.R. 4	Ensilage.........	16½	4	15	13	31½	80§
Alex. Hume, do R.R. 3	do	16	4	14	13	29½	76½§
Hy. McKelvie, do R.R. 4	do	15	4½	17	14	24	74½§
C. Bonnycastle, do	do	14	4½	12	14	28	72½§
ONTARIO.							
BEAVERTON AGR. SOCIETY							
Judge—H. E. Redner, Rednersville.							
Jno. Westlake, Beaverton, R.R. 3	Wisconsin No. 7..	16½	4	19½	14	36	90
Jno. Ross, do	do ..	17	4	19	14	35½	89½
Dunrobin Farm, do	Longfellow......	17	4½	18	14	35½	89
Jno. Alsop, do	Longfellow and Wisconsin.....	16½	4	17½	13½	35	86½
F. W. Rilance, do R.R. 2	Golden Glow.....	16½	4	16	14½	35	86
Thos. Waddell, Brechin, R.R. 1	Wisconsin No. 7..	15½	4	18	14	34	85½
R. F. McKay, Beaverton, R.R. 2	Golden Glow.....	16½	4	17½	13½	33½	85
J. Harrison, do R.R. 2	do	16	4	16½	13½	34	84
D. Gilchrist, Brechin, R.R. 1 ..	W. Cap..........	15½	4	17½	14	32½	83½
Hodgkinson & Tisdale, Beaverton	Compton's Early.	16	4	14	13½	35½	83§
D. McKay, Brechin, R.R. 1	Golden Glow.....	15	4	18	13½	31½	82
Walter McKay, Beaverton, R.R.2	do	15	4	15	14	33½	81½
Jos. McDonald, do	Longfellow......	13	4	16	14	31	78
OXFORD.							
E. NISSOURI AGR. SOCIETY							
Judge—C. Schuyler Woodstock.							
D. Thompson, Thamesford, R.R. 2	Bailey..........	17¼	4½	19	14¼	37	92
G. R. Matheson, Harrington	Golden Glow.....	16½	4	18	14½	35	88
W. J. Hogg, Thamesford, R.R. 2	do	16¾	3	16½	14½	37	87¾
F. G. Seaton, Lakeside, R.R. 2	Wisconsin No. 7..	17	4¼	16	14¼	35½	87
A. Shetstone, do	Compton's Early.	16	4½	18	14½	33	86§
D. Quinn, Thamesford, R.R. 2	Golden Glow.....	15¾	3½	18	14	33	84¼
Sam Tye, do R.R. 1	do	14½	4½	17	14	31½	81½
H. Rutledge, Kintore	W. C. Y. Dent....	13½	3½	17	14	31	78¾
H. G. Gleason, Lakeside	Golden Glow.....	16	4½	17	7	33	77½
D. R. Calder, do R.R. 2	do	16½	4	13	13	30	76½

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
OXFORD—*Continued.*		(20)	(5)	(20)	(15)	(40)	(100)
INGERSOLL, N. AND W. OXFORD AGR. SOCIETY.							
Judge—Robt. Berry, St. Mary's.							
Clarence Cuthabert, Ingersoll...	Golden Glow.....	17½	3½	19	15	33½	88½
Geo. Way, do	Wisconsin No. 7..	17½	4½	16	15	34	87
D. W. Clark, do	W. Cap..........	17½	3	19	15	32	86½
G. M. Nancekivell, do	Wisconsin No. 7..	17½	3	15	15	35	85½
J. G. Currie & Son, do	Golden Glow.....	18	4	19	15	27½	83½
W. W. Nancekivell, do	W. Cap..........	16½	4	17	15	30½	83
Geo. Wilson, do	do	16	4½	19	15	28	82½
R. Bailey, do	do	16½	4	19½	15	27	82
Walter Wilson, Salford	Golden Glow.....	16½	3	17	15	27½	79
R. M. Harris, Ingersoll	do	16	4½	10	15	30½	76
W. R. Ellery, Mt. Elgin	do	15	5	17	15	23	75
A. D. Robinson, Ingersoll	W. Cap..........	16½	3	12	15	28	74½
Thompson Bros., Salford	Golden Glow.....	16½	4½	11	15	27	74
H. W. Wilson, Ingersoll	W. Cap..........	17½	4	10	15	27	73½
S. NORWICH AGR. SOCIETY.							
Judge—R. H. Abraham, Chatham.							
Jno. Ryder, Otterville, R.R. 2	Wisconsin No. 7..	18½	4	19¾	14½	38	94¾
Wm. Innis, do R.R. 1	do ...	18	4	18¾	14½	38½	93¾
J. A. Lawrence, La Salette	do ...	18	4	18	14½	38½	93
C. J. Longstreet, Otterville, R.R.1	do ...	17½	4½	18	14½	37½	92
Wm. Deer, do R.R. 2	do ...	17	4	18½	14½	37½	91½
Wm. Watling, Tillsonburg	do ...	17	4	17	14½	37½	90
Cecil Hussey, Otterville, R.R. 2	do ...	17½	4	16	14¼	37½	89¼
W. Treffry, do R.R. 2	do ...	17	4	17	14	37	89
H. Treffry, do R.R. 2	do ...	17	4	15	13½	37	86½
Fred. Broad, do R.R. 1	do ...	15	4	16	14	37	86
Frank Broad, Cornell	do ...	14½	4	16	13	35	82½
Thos. Stroud, Springford	do ...	15	4	16	13	34	82
Jas. Blow, do R.R. 1	do ...	14	4	16	13	34	81
A. E. Moore, Otterville, R.R. 1..	do ...	16	4	10	10	34	74
PEEL.							
TORONTO TP. AGR. SOCIETY.							
Judge—G. A. Williams, Guelph.							
J. K. Featherston, Streetsville, R.R. 1	Big Crop.........	19¼	5	19	15	35¾	94§
J. B. Ross, Meadowvale, R.R. 1	Wisconsin No. 7..	18¾	4¾	18	15	37	93½
S. Switzer, Streetsville, R.R. 1	Big Crop.........	19	5	18½	15	34	91½§
Edgar Adamson, do R.R. 1	do	18½	4¾	18½	15	33½	90¼§
F. A. Maas, do	Leaming.........	17	5	18	15	34	89§
Jno. Weylie, do R.R. 3	Big Crop........	18	5	16	15	32½	86½§
Reg. Kay, Erindale	Ensilage.........	15½	5	18½	13	29½	81½§
J. W. Miller, Streetsville, R.R. 2	do	15½	5	15	15	29	79½§
Everist & Jarvis, do	do	15	4¾	14	15	29½	78¼§
D. H. McCaugherty, do	Leaming.........	14½	4¾	12	15	29	75¼§

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
PERTH.		(20)	(5)	(20)	(15)	(40)	(100)
FULLARTON, LOGAN AND HIBBERT AGR. SOCIETY.							
Judge—E. J. McLoughry Markdale.							
Hy. Greenwood, Mitchell	Wisconsin No. 7	17	4	19	14	34½	88½
J. Winteringham, do	Bailey	17½	4	18	14	34½	88
Jas. Scott, Dublin	do	16½	4	18	14	35	87½
G. Hillebrecht, Bornholm	Wisconsin No. 7	17½	3½	18	14	33	86
N. Heal, Munroe, R.R. 1	Bailey	17½	3½	17½	14	33	85½
E. Docking, Dublin, R.R. 2	do	17	3½	17½	14	33	85
S. Cole, Russeldale	Mixed	16	3½	17½	14	33½	84½
A. Krauskopf, Dublin	Bailey	16	3½	17	14	33½	84
G. Krauskopf, do	do	16	3½	17	14	32½	83
G. Leonhardt, Bonholm	do	16	3½	17	13½	33	83
STRATFORD AGR. SOCIETY.							
Judge—E. J. McLoughry, Markdale.							
D. M. Ballantyne, Stratford, R.R.3	W. C. Y. Dent	18½	3½	19½	14	30	85½
R. Thompson, St. Paul's, R.R. 2	Golden Glow	18½	3½	19½	14	29½	85
F. H. Bell, do R.R. 2	W. C. Y. Dent	18½	3½	19½	14	29	84½
W. W. Ballantyne, Stratford, R.R. 3	Golden Glow	18½	3	18½	14	30	84
N. Monteith, do R.R. 2	Dent	17	5	14½	14	30½	81
E. Densmore, do R.R. 2	do	18	3	15½	14	30	80½
Arbogast Bros., Sebringville	W. C. Y. Dent	18	3	15	14	30	80
W. H. Douglas, St. Paul's, R.R. 2	Dent	18	3	15	14	29½	79½
Jno. Fraser, Stratford, R.R.	Bailey	17	4	15	14	27½	77½
F. Dunsmore, do R.R. 2	Dent	17½	4½	16	13½	26	77½
Jacob Litt, Sebringville	W. C. Y. Dent	16½	4½	16	13½	26½	77
Hy. Dunsmore, Stratford, R.R. 2	Dent	16	4½	16	13½	26½	76½
PRINCE EDWARD.							
AMELIASBURG AGR. SOCIETY							
Judge—D. English, Burketon.							
W. J. Barber, Rossmore	Golden Glow	19	5	17	15	37	93
Jno. Walker, do	Wisconsin No. 7	18	5	18	15	36½	92½
J. R. Anderson, Mountain View	do	18½	4½	20	15	34	92
J. A. Weese, Rossmore	W. Cap	16	4	17	13	35	85
L. Wallbridge, do	do	16	4½	16	15	33	84½
J. S. Wallbridge, do	do	16	4	16	14	34	84
C. R. Parliament, Ameliasburg	do	14	4	17	15	33	83
T. D. Wallbridge, Rossmore	Wisconsin No. 7	15	4	15	14	34	82
Hy. Jose, do	do	14	3½	13	14	32	76½
Morley Dempsey, Consecon	Longfellow	13	4	15	13	31	76

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
PRINCE EDWARD.—*Con.*		(20)	(5)	(20)	(15)	(40)	(100)
PRINCE EDWARD AGR. SOCIETY.							
Judge—D. English, Burketon.							
E. B. Purtelle, Bloomfield	Wisconsin No. 7..	19	5	18	15	36	93
Grant Thompson, do	do ...	18½	4½	18½	15	36	92½
Herb. McDonald, do R.R. 1	....	17	5	19	15	36	92
B. R. Leavens, do	Wisconsin No. 7..	17½	4½	18½	15	36	91½
W. H. Gough, do	do ...	18	4	17	15	36½	90½
W. Leavitt, Woodrous	Leaming.........	17	4	17	15	37	90⅔
Peter Cave, Bloomfield	Wisconsin No. 7..	16	4½	17	15	37	89½
Morris Huff, do R.R. 1	Pride of Nishna.	17	4	18	13	34	86⅔
M. Gilbert, Denorestville, R.R. 3	Wisconsin No. 7..	16	4	16	15	34	85
C. Mallory, Bloomfield	Leaming.........	15½	4	16	15	33½	84⅔
RUSSELL.							
RUSSELL AGR. SOCIETY.							
Judge—Peter Wilson, Cobden.							
Jas. Wilson, Russell, R.R. 2	Imp. Leaming....	18	5	19½	14	37	93½⅔
Jno. Paul, do R.R. 2	W. C. Dent.......	17½	5	17	14½	38	92
Robt. Hamilton, do	do	16½	5	18	15	36	90½
W. Kinkade, do R.R. 3	Wisconsin No. 7..	16½	4	18	14	37	89½
Edgar Young, do	W. C. Dent.......	17	4½	17	15	35	88½
Wm. Booth, do	do	17	3	18	15	35	88
C. Cherry, do	do	16	4½	16½	13	37	87
Chesley Pillar, do	do	16	5	17	14	34½	86½
D. Cummings, do	do	15	5	17	14	35	86
Hugh Morrow, do	do	14	5	17	14½	35	85½
Arthur Long, do	do	16½	4½	17	13½	33½	85
Edgar Craig, do	do	16	......	19½	13	36	84½
J. E. Adams, do	Wisconsin No. 7..	16	4	16	13	35	84
Dougal Loucks, do	W. C. Dent.......	14	4	16	14	31	79
Allen Stevenson, do	do	14	4	14	13	33	78
VICTORIA.							
ELDON AGR. SOCIETY.							
Judge—H. E. Redner, Rednersville.							
Geo. Whetter, Woodville	W. Cap, N. Dakota and Longfellow.	16½	4	19	12	36	87
Geo. McKague, do	Wisconsin No. 7..	16	4	18	14	34	86
Harvey Dixon, do	Golden Glow.....	15½	4	16	14	33½	83
Dan. McLean, do	W. Cap..........	15½	4	16	14	32½	82
Gus Veale, do	Wisconsin No. 7..	16	4	15	14	32½	81½
Angus Jamieson, do	Golden Glow.....	14	4½	17	12	33½	81
A. D. McMillan, do	N. Dakota........	13	4	17	13	31	78
W. R. Greenway, do	Golden Glow.....	14	4	14	12½	31½	76
Jno. Rose, do	W. Cap..........	12	3	14	12	22	73
Jno. Currie, do	Golden Glow.....	12	3	14	12	31	72

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

CORN.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from smut and insects.	Thoroughness of cultivation.	Purity of variety.	†Yield of fodder and grain.	Totals of scores.
WATERLOO.		(20)	(5)	(20)	(15)	(40)	(100)
S. WATERLOO AGR. SOCIETY.							
Judge—T. G. Brown, Ancaster.							
J. R. Wood, Preston, R.R. 2	Bailey...........	18½	4¼	19	14½	36	92½
R. & D. Arthur, Branchton, R.R.2	Wisconsin No. 7..	17½	4½	19	14	36½	91½
G. R. Barrie & Son, N. Dumfries	do ...	17½	4½	19	14	35½	90½
C. Hilborn, Dundee, R.R. 1	do ...	17½	4½	18	14	36	90
T. M. Jamieson, Hespeler, R.R. 1	do ...	17½	4½	19	14	34½	89½
E. S. Shantz, Puslinch, R.R. 2..	Big Crop.........	17½	4½	18½	14	33½	88§
E. J. Kemkes, Branchton, R.R. 1	Wisconsin No. 7..	16	4	19	14	34	87
W. Gillespie, Galt, R.R. 5	do ...	15	4	18	14	32½	83½
Jas. Tutton, do R.R. 5	do ...	15	4	18	14	32	83
A. G. Taylor, do R.R. 7	do ...	15	4	17½	14	31½	82
R. S. Oliver, Branchton, R.R. 2	do ...	14½	4	17	14	29½	79
A. Turnbull & Son, Galt, R.R. 3	....	14½	4	16	12	30	76½
R. E. Cowan, do R.R. 3	Wisconsin No. 7..	14½	4	15	12	30	75½
WELLAND.							
BERTIE AGR. SOCIETY.							
Judge—W. Hickson, Bobcaygeon.							
Geo. Sexsmith, Ridgeway, R.R. 2	Hybrid Dent.....	19	5	17	15	33	89§
M. W. Sexsmith, do R.R. 2	Salzer's N. Dakota........	18	5	19	15	31	88
Jas. E. Laur, Bridgeburg, R.R. 1	Golden Glow.....	18½	4½	17½	15	32	87½
J. W. Jewson, Fort Erie, R.R. 1	do	18	4½	18	15	31¾	87¼
Wm. Woehl, Bridgeburg, R.R. 1	do	15	4½	17	15	34	85½
J. W. McGaw, Fort Erie, R.R. 1	Wisconsin No. 7..	18	5	15	13	34	85
Hy. Miller, Stevensville, R.R. 2	Golden Glow.....	17½	5	16	15	31	84½
J. R. Phillips, Fort Erie, R.R. 1	Wisconsin No. 7..	18½	5	14	14	32½	84
F. A. Sexsmith, Ridgeway, R.R. 1	W. C. Y. Dent.....	17	5	18	13	30	83
J. F. Miller, Stevensville, R.R. 2	Big Crop.........	18	4½	15	15	28	80½§
Geo. Miller, do R.R. 2	Golden Glow.....	15½	5	15	15	29½	80

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
ALGOMA.		(15)	(17)	(20)	(10)	(38)	(100)
BRUCE MINES AGR. SOCIETY.							
Judge—W. S. Scarf, Toronto.							
Rich. Jeffery, Bruce Mines, R.R. 1	Green Mountain..	14½	16½	19	10	36½	96½
N. Space, do R.R. 1	Carman No. 1.....	14½	16	18	10	35½	94
John Shaule, .. do R.R. 1	Green Mountain..	14½	16	15	10	37	92½
Clifford Mills, do R.R. 1	Carman No. 1.....	13	16	15	10	35	89
Fred. Hopper, do R.R. 1	Beauty of Hebron.	12½	16	16	10	34	88½§
Wm. Vaughan, do R.R. 1	Green Mountain..	10	16	13	10	33	82
H. Shuskey, do R.R. 3	Carman No. 2.....	12	16	14	10	29	81
Chas. Hopper, do R.R. 1	do	10	16	15	10	28	79
R. I. McEwen, do R.R. 1	Green Mountain..	13	16	16	5	28½	78½
J. C. Wilson, do R.R 1	Carman No. 2.....	13	13	16	10	26	78
Alex. Shaule, do R.R. 1	do	12½	16	12	8	29	77½
Samuel Rowe, do R.R. 1	Irish Cobbler.....	10	15	14	10	28	77
R. J. Vaughan, do R.R. 1	Carman No. 1.....	10	15	12	10	28	75
NORTH SHORE AGR. SOCIETY.							
Judge—W. S. Scarf, Toronto.							
T. Larocque, Laird	Green Mountain..	14	16½	18	10	35	93½
Wm. Barkley, Bar River	Carman No. 2.....	13	16½	17	10	34	90½
Carson Moore, MacLennan	Gold Coin........	11	16	17	10	32	86
W. R. Majury, Bar River	Green Mountain..	11½	16	14	10	32½	84
Edwin Pollard, Echo Bay	Carman No. 1.....	13	15	10	10	31½	79½
Chas. A. Hurley, do	do	10	16	10	10	32½	78½
J. Booth, Bar River	Green Mountain..	8	16	16	10	28	78
J. A. Davidson, MacLennan ...	do ...	7	15	18	10	27½	77½
Chas. Stewart, Bar River	Irish Cobbler.....	10	15	10	10	27	72
D. Headrick, Echo Bay	do	10	15	10	8	29	72
Alex. Stewart, Bar River	do	9	15	10	10	27	71
ST. JOSEPH ISLAND AGR. SOCIETY.							
Judge—Wm. Scarf, Toronto.							
W. H. Canfield, Richard's Land'g	Empire State.....	13½	16	18½	10	35½	93½§
Bert. Harrison, do ..	Davies Warrior...	12½	17	16	10	31	86½
J. S. Smedley, do ..	Green Mountain..	12	16	13	10	35	86
B. V. Rains, do ..	do ...	13½	15½	13½	10	32	84½
Walter Gay, do ..	do ...	12	16	18	10	28	84
Geo. Smedley, do ..	do ...	11	15	11	10	29	76
Edgar Rains, do ..	do ...	11	15	7	10	29	72
A. W. Stableforth, do ..	do ...	10	16	10	10	25	71
S. H. Underhill, do ..	do ...	13	13	18	10	16	70

*General appearance—Considering method of planting, stand of crop, and vigor of growth.

†Apparent Yield—Considering weight of marketable potatoes, per square yard, quality, smoothness and uniformity of shape, state and uniformity of maturity, and freedom from sunburn.

§Points deducted for non-standard variety.

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
ALGOMA—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
THESSALON AGR. SOCIETY.							
Judge—W. S. Scarf, Toronto.							
A. J. Bell, Sowerby	Green Mountain..	14	16½	19	10	33½	93
Duncan McLennan, Livingstone Creek	Beauty of Hebron.	14	16½	16	10	37	93½§
Jos. Broughton, do	Six Weeks........	14	16	18	10	34½	92½§
J. McDougall, Sowerby	Prize Winners....	14	16½	17½	8½	35½	92§
J. D. McLennan, Thessalon, R.R.2	Green Mountain..	14½	16	18	10	31	89½
Wm. Wear, do R.R. 2	do ...	15½	15½	18	10	30	89
Alex. Duff, Bruce Mines, R.R. 1	Carman No. 1.....	13	16	18½	10	30½	88
Thos. Cordukes, Thessalon, R.R.2	Green Mountain..	12	16	18	10	31	87
J. R. McLennan, Livingston Crk.	Beauty of Hebron.	12½	16	16½	9	32½	86½§
Jas. Mills, Bruce Mines, R.R. 1	Carman No. 1.....	13	14	17	10	31½	85½
Harry Hagen, Thessalon, R.R. 2	Beauty of Hebron.	13	16	16	10	30	85§
J. Labban, do R.R. 2	Green Mountain..	11½	16	15	10	31½	84
A. I. Hopkins, do R.R. 2	Green Mountain..	11	16	15	10	31	83
W. Mitchell, Bruce Mines, R.R. 1	Carman No. 1.....	12	16	14	10	30	82
Isaac Leach, Thessalon	Beauty of Hebron.	12	17	18	10	24	81§
Thos. Bailey, do R.R. 2	do ...	10	16	12	9	30	77§
John H. Hooper, do R.R. 1	do ...	15	12	18	8	23½	76½§
John Walker, do R.R. 2	do ...	10	16	10	10	29	75§
Wm. Gillespie, do R.R. 2	do ...	10	16	15	10	23½	74§
Jos. Rowan, do R.R. 1	do ...	12	16	12	4	30	74§
R. Howick, Bruce Mines, R.R. 1	Carman No. 1.....	11	14	9	10	28	72
BRUCE.							
HEPWORTH AGR. SOCIETY.							
Judge—D. Smith, Smithdale.							
Alfred Forbes, Hepworth	Empire State.....	12	15	17	8	30	82
Hugh Anderson, do	do	12	14	16	8	31	81
John Eldridge, do	do	11	14	13	10	31½	79½
Chas. Walker, do	do	11	14	17	8	29	79
A. F. Cunningham, do	do	10½	13	18	8	29	78½
Jas. Doubt, do	do	11	14	17	8	28	78
C. A. Millard, do	do	10½	14	16	8	29	77½
R. Gates, do	do	10	14	15	10	28	77
Sam. Doubt, do	do	10	14	16	10	26	76
Chas. H. Gates, do	do	10	13	15	10	27	75
A. T. Baldwin, do	do	9½	13	16	7	29	74½
Thos. Hill, do	do	10	13	14	7	27	71
NORTH BRUCE AND SAUGEEN AGR. SOCIETY.							
Judge—D. Smith, Smithdale.							
J. Baker, Port Elgin	Red Elephant.....	13	15	16	10	32	86
Wm. Greathead, do	do	11	15	18	10	30	84
Ed. Leader, do	....	11	14	18	10	27	80

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
BRUCE—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
NORTH BRUCE AND SAUGEEN AGR. SOCIETY.—*Con.*							
D. E. Campbell, Port Elgin	Green Mountain..	11	14	15	10	29	79
W. J. Pearson, do	do ...	9½	14	15	10	30	78½
J. W. Anderson, do	do ...	10	14	15	10	29	78
E. L. Hamilton, do	Empire State.....	9	14	14	10	27	74
A. Upshall, do	....	9	12	15	10	26	72
Sam. Spark, do	....	10	13	14	6	28	71
WIARTON AGR. SOCIETY.							
Judge—E. I. McLoughry, Markdale, R.R. 4.							
E. I. Loney, Oxenden	Lincoln..........	13½	16	19	8½	27½	84½
Alex. McCoage, Wiarton, R.R. 3	American Wonder	13½	16	19	8½	27	84
T. H. Rathwell, do R.R. 3	Empire State.....	13½	15½	19	8½	27	83½
Wm. Stephens, do R.R. 2	do	13	16	14½	7	26	76½
Wm. Lambke, do R.R. 2	Green Mountain..	13	15½	16½	6½	24½	76
G. H. Loney, Oxenden	....	13	15	16½	6	25	75½
R. E. Stacey, Wiarton, R.R. 3	American Wonder	13	15	17	6	24	75
Howard Baldwin, do R.R. 2	do ...	13	15	16½	6	24	74½
J. E. Hyatt, do R.R. 2	W. Elephant......	13	15	13½	8	24	73½
W. Ottawell, do R.R. 2	Green Mountain..	14	16	18	7½	18	73½
Albert Lambke, do R.R. 2	Empire State.....	13	15	16½	6½	19	70
CARLETON.							
METCALFE AGR. SOCIETY.							
Judge—Peter Wilson, Cobden.							
Robt. McKeown, Russell	Freeman.........	14½	16	18	9½	36½	94½
R. and J. Woods, Metcalfe	Green Mountain..	15	15	19	9	35	93
Hugh Woods, do	Freeman.........	14	16	19	9	34	92
J. D. Wallace, Edwards, R.R. 2	Green Mountain..	14	15	18	9	35½	91½
John Gillissie, do	Freeman.........	13½	16	17½	9	33	89
W. A. Waddell, do	Green Mountain..	13	15	17	9	33	87
Russell Dempsey, do R.R. 1	Freeman.........	12½	15½	15	9	34½	86½
Walter Ralph, Metcalfe	Green Mountain..	13	15	17	8	33	86
J. P. Carson, Edwards, R.R. 1	do	11½	15	15	9	35	85½
D. J. Carson, do	Freeman.........	13½	15½	16	8	32	85
Peter Anderson, Metcalfe	Green Mountain..	12	14	15	9	34	84
J. H. Cudig, do	Irish Cobbler.....	12½	15	15½	8	32½	83½
B. L. Boyd, do	do	12½	15½	15	8½	32	83½
Robt. S. Robinson, Edwards ..	Green Mountain..	12	15	15	8	29	79
Hugh Graham, Metcalfe	do ...	10	14	15	8	31	78
DUFFERIN.							
DUFFERIN AGR. SOCIETY.							
Judge—Wilson Black, Stroud							
W. H. Gillespie, Orangeville, R.R. 3	Green Mountain..	11	15	18	10	30	84
Wm. L. Ewing, do R.R. 3	do ...	11	15	19	10	27	82

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
DUFFERIN.—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
DUFFERIN AGR. SOCIETY.—*Con.*							
Nelson Black, Orangeville, R.R.2	Green Mountain..	11	15	18	10	27	81
Jos. H. Jackson, do R.R. 1	do ...	11	15	19	10	25	80
M. McCormick, Amaranth Sta...	do ...	10½	15	18	10	25½	79
W. H. Hunter, Orangeville, R.R.2	do ...	10	15	18	10	25	78
Geo. Lightle, Amaranth Sta. ..	do ...	10	14	18	10	25	77
W. P. Dodds, Orangeville	do ...	10	13	17	10	26½	76½
Freeman Leader, do	do ...	10	14	17	10	24	75
W. J. Hamilton, Shelburne, R.R.1	Davies Warrior...	10½	13½	18	10	22	74
J. J. Leighton, Orangeville, R.R.1	World's Fair.....	10	15	15	9	23	72§
EAST LUTHER AGR. SOCIETY.							
Judge—Wilson Black, Stroud.							
Robt. H. Wansborough, Laurel..	Irish Cobbler.....	12	14	16	10	31	83
Eli Newson, Grand Valley, R.R.3	Gold Coin........	11	14	17	10	28	80
Isaac Taylor, do	do ...	11	14	15	10	29	79
Wm. Willmott, do	Green Mountain..	11	13	16	10	27	77
Wm. E. Turner, do R.R. 3	do ...	10½	13	15½	10	27	76
H. Berry & Sons, do	do ...	12	11½	16	10	24½	74
Edward Crane, do	do ...	12	12	12	10	26	72
Jos. R. Carroll, Orton	do ...	10	12	13	9	26	70
DURHAM.							
CARTWRIGHT AGR. SOCIETY.							
Judge—Robt. Greer, Morrisburg							
Geo. M. Marlow, Nestleton Sta.	Noxall...........	13½	16	19	10	37	95½
Harold Porteous, do	Empire State.....	14½	16	19	10	35	94½
Herb. Hooey, Burketon Station.	Noxall...........	12	16	17½	9	34½	89
R. Suggitt, Nestleton Station ..	Green Mountain..	12½	16	18½	9	32½	88½
L. E. Mountjoy, Burketon Sta.	do ...	12	15½	17½	8	33½	86½
Windel Ginn, do	do ...	12	15	18	9	32	86
W. C. Ferguson, Blackstock ...	do ...	12	15½	18½	9	30¾	85¾
John Mountjoy, Nestleton Sta.	Michigan Reds...	12	10	18	9	29	78
Wesley Campbell, do	Green Mountain..	11	14	19	10	25	79
Edward Armstrong, do	E. Northern......	11	14	17	8	27	77
GREY.							
ROCKLYN AGR. SOCIETY.							
Judge—John McDiarmid Lucknow.							
J. A. Perry, Meaford, R.R. 4....	American Wonder	14	16	19½	10	31	90½§
W. J. Lush, Rocklyn	do ...	14	16	19	10	30½	89½§
John Yeadell, do R.R. 2	do ...	12	16	19	9	28½	84½§
John King, Markdale, R.R. 4 ..	Carman No. 1.....	10½	16	17	10	28½	82
J. A. Cook, Rocklyn	Burpee's Early...	12½	16	17	9	29	83½§
Wesley Patton, do R.R. 2	American Wonder	11½	15	18	8	30½	83§

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
GREY.—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
ROCKLYN AGR. SOCIETY.—*Con.*							
C. F. Fisher, Meaford, R.R. 4	Early Elephant	11½	15½	18	9	27	81§
J. J. Johnston, Markdale, R.R. 2	Peerless	12	15½	17	8	27¾	80¼§
Clifford Erskine, do R.R. 2	Elephant	11½	15	17	8½	28	80§
Thos. Langtree, Rocklyn	American Wonder	11	15	17	8	27½	78½§
Gordon Erskine, Markdale, R.R. 2	Elephant	11½	14½	17	7½	27½	78§
G. L. Sewell, do R.R. 2	American Wonder	10	15	16	9	27	77§
W. H. Sewell, do R.R. 2	do	10½	15	16	9	25½	76§
M. Abercrombie, do R.R. 4	do	10½	15	16	9	25	75½§
Robt. Dunlop, do R.R. 4	do	11	15	18	7¼	24	75¼§
Gordon Beckett, do R.R. 4	do	10½	14	16	8	26	74½§
Samuel Gilmore, Rocklyn	do	10	14	16	8	24	72§
HALTON.							
NELSON AND BURLINGTON AGR. SOCIETY.							
Judge—J. A. McDermid Collingwood.							
J. Clark, Burlington	Carman	14	16	18	9	34	91
Thos. Fothergill, Bronte, R.R. 1		13¾	15	19	9	33¼	90
Jas. McKerr, Freeman	Dooley	11½	16	15	9	27¾	79¼
Morley Watson, Tansley	Green Mountain	11¼	16	17	9	24¾	78
F. E. Spence, Freeman, R.R. 1	Dooley	10¾	15	15	9	24¼	74
J. A. Pettit, do R.R. 1	Delaware	9½	15	15	9	21¾	70¼
John Smoke, do R.R. 1	Dooley	9½	14	16	9	21½	70
HASTINGS.							
MADOC AGR. SOCIETY.							
Judge—Robt. Greer, Morrisburg.							
H. Rollins, Cooper	Gold Coin	13	15	18	10	34½	90½
Fred. Comerford, Eldorado	Uncle Sam	13	15	18	10	33½	89½
Jos. Chambers, do	Comet	13	16	18½	7½	33½	88½
Chas. Robinson, do	White Star	13	15½	18½	9	31	87
Henry Kells, Madoc	Comet	11½	15½	17½	9	32	85½
Jas. Moore, Queensboro	Early Ohio	11	14	18	10	31	84
J. S. Empey, Eldorado		11	15	18½	9	24½	77
Jas. Caskey, Madoc	Green Mountain	10½	15½	18	4	28	76
John Moore, Queensboro	Delaware	11	15	18	9	22	75
Thos. Pack, Eldorado	Comet	11	12½	15	7	34½	70
WOLLASTON AGR. SOCIETY.							
Judge—J. A. McDermid, Collingwood.							
H. Moore, The Ridge	Green Mountain	14	16	19	9	34	92
Colin McGregor, do	do	13¾	16	19	9	33¼	91
E. Moore, do	Gold Coin	13	16	17	9	31	86

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
HASTINGS—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
WOLLASTON AGR. SOCIETY.—*Con.*							
A. Danford, Coe Hill	Irish Cobbler.....	13	15	17	9	30	84
A. Miller, do	Green Mountain..	12¼	15	17	9	29	82¼
R. Thompson, The Ridge	do ...	11¾	16	16	9	28½	81¼
D. G. Gunter, Coe Hill	Irish Cobbler.....	11¾	16	15	9	27¾	79½
H. Stewart, do	Green Mountain..	11	15	19	9	25	79
R. J. Henderson, The Ridge ...	Gold Coin........	10¾	16	17	9	24¼	77
Chas. Muffitt, Jr., Coe Hill	Green Mountain..	10¾	14	18	9	25	76¾
Dan. Henderson, The Ridge	do ..	10½	16	17	9	23¾	76¼
Chas. Muffitt, Sr., Coe Hill	Gold Coin........	10	16	18	9	23	76
KENORA.							
DRYDEN AGR. SOCIETY.							
Judge—Alex. Morrison Creemore.							
John Hutchinson, Dryden	Green Mountain..	13	16	19	10	35	93
J. M. Hutchinson, do	Irish Cobbler.....	13½	16	19	10	33½	92
Thos. H. Lewis, Oxdrift	do	13	16	19	10	33	91
John McKay, Dryden	do	13	16	19	10	32	90
W. Tew, do	Green Mountain..	13	16	19	10	31	89
W. H. Martin, do	Irish Cobbler.....	12	16	18	10	31	87
D. F. McKenzie, Eagle River ..	do	12	16	18	10	30	86
E. W. Wice, Dryden	do	12	16	18	10	29	85
C. Snider, Jr., Oxdrift	Green Mountain..	11	15	18	10	28	82
J. S. Corner, do	Irish Cobbler.....	11	15	18	10	25	79
KENORA AGR. SOCIETY.							
Judge—Alex. Morrison, Creemore.							
McDonald Bros., Kenora	Irish Cobbler.....	13	16	19	9	35½	92½
Geo. Alcock, do	do	13	15	18	10	35½	91½
Gould Bros., do	do	13	15	18	10	32	88
H. Thorpe, do	do	13	16	18	10	30	87
A. R. Ascough, do	do	11½	15	18	10	30½	85
Jas. Smith, Pellatt	Green Mountain.	13	15	18	9	28	83
Wm. McKreith, Kenora	Irish Cobbler.....	11	15	18	10	27	81
C. Outen, do Box 246	Green Mountain..	11	15	16	10	27	79
H. Webster, do	Irish Cobbler.....	12	15	15	10	26	78
S. Sundine, Keewatin	do	11	15	15	10	25	76
W. Greenwood, Kenora	Green Mountain..	11	14	16	9	22	72
MIDDLESEX.							
CARADOC AGR. SOCIETY							
Judge—Thos. Creighton, Mooretown.							
Alex. Lamont, Mt. Brydges, R.R.2	Dooley...........	13½	15	20	9	29½	87
J. T. Crawford, Strathroy, R.R. 1	do	13½	15	19	9	30	86½
Arch. Graham, do R.R. 1	do	13½	13	19	9	30¾	85¼

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
MIDDLESEX—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
CARADOC AGR. SOCIETY.—*Con.*							
A. M. McNeil, Strathroy, R.R. 1	Dooley..........	13	16	18	9	28	84
D. Campbell, Mt. Brydges, R.R. 2	do	13½	13	19	8	29¾	83¼
Stanley Trott, do R.R. 4	do	12½	13	20	9	28	82½
John C. Crawford, Strathroy ...	do	13	14	19¼	9	27	82¼
Jas. Hill & Son, do R.R. 1	do	13	13	19	9	28	82
W. S. Leitch, do	do	13½	13½	19	9	26½	81½
J. R. Veale, Mt. Brydges, R.R. 3	do	13	12	19	9	28	81
Allan McLean, do R.R..2	do	13	12½	18	9	28	80½
W. W. Watson, do R.R. 2	do	13	13	18	9	27¼	80¼
D. A. McNeil, Strathroy, R.R. ..	do	12½	13	18	9	27½	80
John Coultis, Mt. Brydges	Colorado.........	13½	13	18	8	26¾	79¼
Jas. Peters, do R.R. 3	Dooley..........	13	12	18	9	27	79
John S. Walker, Strathroy, R.R.2	do	13	13	18¾	9	25	78¾
C. Trott, Mt. Brydges, R.R. 4	do	13½	13	18	9	25	78½
R. E. Miles, do R.R. 4	Green Mountain..	12	13	18	8½	24¼	75¾
WESTMINSTER AGR. SOCIETY.							
Judge—Thos. Creighton, Mooretown.							
Stanley Merrill, Delaware	Dooley..........	12½	13	18	9	29	81½
Herb. Poole, Lambeth, R.R. 1 ..	Carman..........	12½	15	18	9	34½	89½
Nelson E. Belysea, Byron, R.R. 1	Dooley..........	13	14	18	7	24½	76½
Fred. Poole, Lambeth	Carman..........	13½	12	17	8	25¾	76¼
M. E. Hooper, do	do	13	14	17	8	23	75
Harry Shore & Son, Byron	do	13	12	18	9	32¾	74¾
Dan. C. Duncan, do R.R. 1	Dooley..........	13½	12	19	9	20½	74
W. C. Pack & Son, do R.R. 1	Carman..........	12	10	14	9	25¼	70¼
MUSKOKA.							
GRAVENHURST AGR. SOCIETY.							
Judge—F. A. Comerford, Eldorado.							
Sherm'n Polmateer, Gravenhurst	Empire State.....	14½	17	20	10	36½	98
W. H. Tincombe, do	do	13½	17	20	10	35	95½
Carl Laycock, do	Irish Cobbler.....	13	17	20	10	34	94
E. Hammond, do	Great Divide.....	12½	17	20	9	35	93½
Geo. York, do	Empire State.....	13	17	19	10	34	93
Wallace Ruttan, do	do	13½	17	19	9	33	91½
Josh. Short, do	do	14	17	17	10	33	91
B. Laycock, do	Irish Cobbler.....	10	17	18	10	35	90
Robt. McKay, do	Beauty of Hebron.	12	17	20	7	32½	88½
G. W. Miller, do	Can. Standard....	13½	15	18	10	31	87½
Wm. White, do	Great Divide.....	10	17	18	10	28½	83½
Robt. Young, do	Empire State.....	10	17	15	10	31	83
Jonathan Groh, do	Can. Standard....	13	15	17	8	29½	82½
H. E. Cook, do	Empire State.....	10	17	14	10	29	80
Donald Morrison, do	Canadian Beauty.	10	16	18	8½	27	79½
O. E. Taylor, Reay	Delaware.........	9	13	18	10	29	79
Henry Cook, Housey's Rapids ..	Early Market....	11	16	16	6	28½	77½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
MUSKOKA.—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
MEDORA AND WOOD AGR. SOCIETY.							
Judge—Jas. Boyd, Markham.							
Alex. Ennis, Port Carling	Queen of Hebron	14	16½	19	9	32½	91%
Fred. W. Knight, Brackenrig	Gold Coin	13½	16	19	10	29½	88
Hugh Folkes, do	Early King	12½	16	17	9½	30½	85½%
Wm. Green, Bardsville	Gold Coin	11½	16	17	10	28	82½
Walter Forman, Port Carling	Green Mountain	12½	14	16	10	29	81½
Thos. Aikins, do	Pride of Aristoke	10	15½	17½	9	30½	82½%
Archie Mitchell, Bardsville	Wonder	12	14½	17	9	29½	82%
Wm. A. Perter, Hutton House	Gold Coin	11	15½	15½	10	29	81
Gordon Fraser, Brackenrig	do	11	15	17	7	27	77%
Jos. McCulley, Port Carling	Empire State	11	12½	16½	8½	30	78½%
Chas. Donald, do	Mixed	9½	14½	15	8½	29½	77%
NORTH MUSKOKA AGR. SOCIETY.							
Judge—W. Platt Hinman, Toronto.							
A. Cochrane, Huntsville	Delaware	15½	15	19	9	35½	93
Stanley Martin, Ravenscliffe	American Wonder	15½	16½	18	10	32½	91½%
Wm. N. Sinclair, Huntsville	Green Mountain	14	16½	19½	10	29	89
J. E. May, Ravenscliffe	American Wonder	14	16½	17	10	32½	90%
Blake Hill, Hillside	Green Mountain	14½	16	17½	9½	29	86½
John Pleace, Huntsville	Delaware	14½	14	19	9	29½	86
Daniel Bray, Martin's Siding	Green Mountain	13¼	16	19	9	26	83¼
G. B. Richard, Huntsville	Morning Star	14½	13	17	10	30½	85%
Joe Bradley, Allansville	Puritan	13½	14	18	9	29	83½%
Arch. Cookson, Huntsville	Green Mountain	14	15	15	8	29	81
SOUTH MUSKOKA AGR. SOCIETY.							
Judge—F. A. Comerford. Eldorado.							
H. L. Goltz, Bardsville	Gold Coin	15	16	19	10	37	97
Daniel Nichols, Bracebridge	American Wonder	13½	16	20	10	35½	95
H. E. Beaumont, do	do	13	16	20	10	33	92
Wm. Naismith, Falkenburg	Dooley	12	16	19	10	32	89
Wm. McNabb, Bracebridge	American Wonder	14	16	15	9	34½	88½
H. Buckerfield, do	Delaware	10½	16	20	10	31½	88
Campbell & Richards, Alport	do	12	15	18	10	32	87
Albert J. Goltz, Bardsville	Green Mountain	10	16	18	6	33	83
H. Richards, Bracebridge	Delaware	11	14	17	9	31	82
Edward Nichols, do	Comet	11	15	16	8	28	78
Wm. Barron, do	Early Pride	9	14	14	10	29	76
STEPHENSON AND WATT AGR. SOCIETY.							
Judge—W. Platt Hinman. Toronto.							
Joe Weir, Utterson	Green Mountain	15	14	19½	10	36¾	95¼
Hugh Patterson, do	Delaware	15	13½	19½	10	35¼	93¼

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
MUSKOKA.—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
STEPHENSON AND WATT AGR. SOCIETY.—*Con.*							
H. Creasor, Ullswater	Davies Warrior..	14¾	13	19	10	36½	83¼
Herb. Putman, do	do ...	13½	14½	17	10	26¾	81¾
Thos. Graham, Raymond	Beauty of Hebron.	14¾	13	16	10	29¼	83¼§
F. M. Johnston, Utterson	Carman No. 3.....	14	15	16	9	28¾	82¾§
J. W. Simpson, Parkersville ...	World's Wonder..	14	16	16	10	26½	82½§
Lester Bunn, Ullswater	Irish Cobbler.....	13½	16	19	5	26¾	80¼
Alfred Kay, Port Sydney	Green Mountain..	13	15	14	9	29	80
Jno. Forsyth, Parkersville	Delaware........	13½	16	15	10	25	79½
A. J. Hughes, Port Sydney	World's Wonder..	15	15	16	5	30	81§
Wm. J. Brown, Utterson	do	13	15	15	10	24	77§
NIPISSING.							
STURGEON FALLS AGR. SOCIETY.							
Judge—Alex. Morrison, Creemore.							
E. Leblanc, Sturgeon Falls	Green Mountain..	13	16	18	10	36	93
Peter Steep, Verner, R.R. 1	Amendes........	13½	16	19	10	36	94½§
Roderic Steep, do R.R. 1	do	13	16	19	10	36	94§
C. Learch, Sturgeon Falls	Delaware........	13	16	18	10	34½	91½
A. Leblanc, do	Green Mountain..	13	16	18	10	34	91
F. Philion, do	do ..	13	16	18	10	33	90
Leon Delorme, do	do ..	13	16	19	10	31½	89½
H. Delorme, do	do ..	13	16	18	8	33	88
Thos. Allaire, do	do ..	13	16	18	9	31½	87½
Frank Benoit, do	do ..	13	16	16	8	33	86
F. Delorme, do	do ..	13	14	15	10	30	82
Jos. Lalonde, do	do ..	10½	15	15	9	30	79½
A. Delorme, do	do ..	11	16	16	9	25	77
Robt. Graham, Verner, R.R. 1..	Irish Cobbler.....	10½	15	15	10	25½	76
L. Champagne, Sturgeon Falls..	Green Mountain..	11	15	14	9	24	73
VERNER AGR. SOCIETY.							
Judge—Alex. Morrison, Creemore.							
Jas. B. Leach, Verner	Carman No. 1....	13	16	18	10	33½	90½
Geo. Demers, do	Green Mountain..	14	15	18	10	32	89
S. Lawrence, do	do ...	13	15	18	8	34	88
Francis Beaudry, do	do ...	13	15	18	9	32	87
Henri Demers, do	do ...	13	15	18	9	29	84
Albert Herard, do	do ...	13	14	17	9	29	82
David Lacrosse, do	Snow Ball........	12	15	18	10	27	82§
Albert Gagnon, do R.R. 1	Green Mountain..	12	16	17	9	25½	79½
Anthenasse Gagnon, do	do ...	11	16	16	10	26	79
Alfred Sylvestre, do	do ..	9	14	16	10	23	72

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
NORTHUMBERLAND.		(15)	(17)	(20)	(10)	(38)	(100)
WOOLER AGR. SOCIETY.							
Judge—J. A. McDermid, Lucknow.							
E. McMasters, Hilton, R.R.	Green Mountain	14	16	16	9	34	89
Wm. Ruttan, Wooler	Carman	11½	16	16	8	27¾	79¼
Bert Vansickle, Trenton	Rural New Yorker	11¼	15	14	8	26¾	75
PARRY SOUND							
ARMOUR, RYERSON AND BURK'S FALLS AGR. SOCIETY.							
Judge—Jas. H. McKee, Shelburne.							
Joe Bell, Burk's Falls	Early Puritan	13½	16	18	9	34	90½
E. H. Alexander, Royston	American Wonder	13½	16	17	9	34	89½
Wm. Near, Burk's Falls	Gold Coin	13	16	17	9	34	89
F. Tyler, Midlothian	Savoy	12	15	18	9	30	84
Robt. Andrews, Burk's Falls	do	13½	15½	16	5½	34	83½
Sam. Edwards, do	Early Puritan	12½	16	16½	9	29	83
S. R. Alexander, do	King Early	12	16	18½	9	27	83½
Duncan Mitchell, do	Gold Coin	12½	15½	16	7	31	82
Delbert Simpson, Midlothian	do	12	15	18	9	27	81
John T. Smith, Stirling Falls	do	11½	15	15	9	27	77½
G. Palmer, do	do	13	15	17	3	29	77
Alex. Kennedy, do	do	11½	15½	14	9	21½	71½
W. M. Wilson, Burk's Falls	Delaware	10½	16	13	5	26½	71
H. R. Doherty, Midlothian	Early King	10½	15	14	7	24	70½
CHRISTIE AGR. SOCIETY.							
Judge—J. A. McDermid, Collingwood.							
Geo. Culp, Orrville	Ought Six	15	15	16	9	32	87
Earl Jones, Broadbent	Green Mountain	12½	16	18	9	30½	86
Jas. White, Orrville	Great Farmer	12¾	15	18	9	29½	84¼
W. H. Burns, do	Green Mountain	12¾	15	15	9	29	80¾
Edward White, do	do	11¾	16	16	9	27¾	80½
M. H. Harker, do	do	11	16	17	9	27	80
F. E. Forbes, Broadbent	do	11¾	16	15	9	27¼	79
John Lawson, Maple Lake	Irish Cobbler	11	15	16	9	26	77
Wm. Hurd, Orrville	Green Mountain	11	14	14	8	24¾	71¾
MACHAR AGR. SOCIETY.							
Judge—G. H. Farmer, Sault Ste. Marie.							
And. McKee, South River, R.R. 1	Green Mountain	14	16	19	9½	34½	93
Jos. McGirr, do	do	14	16	18	9	34	91
Jas. Cole, do	do	13	16	17	9	28½	83½

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
PARRY SOUND.—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
MACHAR AGR. SOCIETY.—*Con.*							
A. Bow, South River	Green Mountain..	12½	15	17	9	27½	81
F. J. Hearn, do	Beauty of Hebron.	11	15	15	9½	30	80½§
R. Carter, do	do ..	12½	14	17	9	26	78½§
Thos. Bottomley, do	Green Mountain..	11	15	18	8	24	76
S. Scarlett, do	Ensign..........	11½	15	17	7	27	77½§
Wm. Hanson, do	do	11	14	16	7	24	72§
MAGNETAWAN AGR. SOCIETY.							
Judge—Jas. H. McKee, Shelburne.							
J. J. Irwin, Magnetawan	Early White......	15	15	18	9	37	94
Robt. Elliott, do	do	14	15	18	9	34	90
Mrs. Veitch, Spence	Beauty of Hebron.	13½	16	18	8	34	89½
A. W. Raaflaub, Magnetawan ..	White Delaware..	13	14½	18	9	34½	89
Jas. Barton, do ..	Green Mountain..	13	14½	18	9	33½	88
Jas. Stewart, do ..	do	13½	16½	18	7	32½	87½
S. N. Morris, do ..	Early White.....	13	15	15	9	30½	82½
A. E. Dauncey, Pt. Anson, Spence	Irish Cobbler.....	12½	14	18	9	27½	81
Julias Wurm, Port Carmen	Gold Coin........	12½	15	15	9	28½	80
Harold H. Miller, Magnetawan..	Beauty of Hebron	13½	16	15½	9	26	80
Wm. Keppy, Spence	do ...	12½	16	16	8½	25	78
Alex. McLachlan, Magnetawan ..	do ...	11½	15½	15	8½	23	73½
Thos. Whalley, do ..	White Delaware..	12	15½	18½	......	26	72
MCKELLAR AGR. SOCIETY.							
Judge—J. A. Kernahan, Maxwell.							
W. H. Moffatt, McKellar	Irish Cobbler.....	14	16	19	10	34	93
Albert Moffatt, do	Davies Warrior...	13	16	18	10	35½	92½
Thos. Moffatt, do	Irish Cobbler.....	14	16	18	10	33½	91½
Henry Moffatt, do	Davies Warrior..	13	15	18	10	34	90
Ed. Moffatt, do	Irish Cobbler.....	13	14	16	8	35	86
R. H. Ball, do	Early Northern..	12½	15	18	9	29	83½§
W. F. Tait, do	Rural New Yorker	13½	15	18	9	27	82½§
C. P. McKeown, do	Davies Warrior...	13½	15	18	8	22	76½
W. E. Taylor, do	Irish Cobbler.....	13	14	16	8	25	76
E. Buchnier, Hurdville	do	11½	15	14	8	22	70½
W. Watkins, McKellar	Davies Warrior..	13	16	18	......	23	70
MCMURRICH AGR. SOCIETY.							
Judge—J. A. McDermid, Collingwood.							
Fletcher Walker, Royston	Empire State.....	15	16	20	9	35	95
P. J. Farrell, Sprucedale	Beauty of Hebron	14	16	18	9	34	91
Hy. Watson, do	Cattle's Beauty...	14	16	16	9	32	87
W. J. Fowler, do	Empire State.....	13¼	15	18	9	31	86¼

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
PARRY SOUND.—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
McMurrich Agr. Society.—*Con.*							
A. F. Fuller, Sprucedale	Empire State.....	12¾	16	17	9	30½	85¼
Chas. Cudmore, do	Green Mountain..	12¾	16	16	9	30	83¾
C. & Jas. Stewart, Doe Lake ...	Delaware........	11¾	16	18	8	29¼	83
J. C. Marshall & Son, Sprucedale	do	11½	16	16	9	27¾	80¼
W. E. Pearce, do	Beauty of Hebron.	11½	16	15	9	27	78½
Richard Siebert, do	White Elephant..	11¼	15	17	9	25¾	78
Jas. Downes, do	do	11	15	15	9	25	75
Perry Agr. Society.							
Judge—Jas. Boyd, Markham.							
Chas. Rose, Emsdale	Green Mountain..	13½	16	17	10	34	90½
M. L. Austin, Fern Glen	Cattle's Beauty...	13	16	18	10	31	88§
H. Libby, do	do	13	16	18	10	29½	86½§
W. J. Leigh, Scotia Jct.	do	12½	16	19	10	28	85½§
Chas. H. White, Emsdale	do	12½	15	17	10	29½	84§
Wm. Warsford, do	do	12½	16	17	10	28	83½§
Arthur Jenkins, do	Can Standard....	11½	16	18	10	27	82½§
Chas. T. Hayward, do	Cattle's Beauty...	10	16	17	10	29	82§
R. Roberts, do	do	11½	15	18	10	26½	81§
Jos. Irwin, do	Empire State....	11	15	16	10	28	80§
H. R. Hayward, Scotia Jct.	Cattle's Beauty...	11	15	16	9	27	78§
Powassan Agr. Society.							
Judge—G. H. Farmer, Sault Ste. Marie.							
John Anderson, Powassan, R.R.1	Green Mountain..	14	15½	19	9	35½	93
Jos. Olston, do	do ...	13½	16	18½	8	36	92
E. J. Purdon, do	do ...	13½	15	19	8	34	89½
L. A. Purdon, do	do ..	13½	15	19	9	32½	89
Henry Oldfield, do	do ...	13	15	17	9	31	85
Duncan McIntyre, do	Early Eureka....	12	14	17	9	31	83
H. Paul, do R.R. 2	Carman No. 1...	12½	14	18	7	30	81½
Jas. Oldfield, do	Delaware........	11½	15	17	9	27	80½
W. G. Oldfield, do	Green Mountain..	12½	14	16	7	30½	80
Owen Gough, do	do ...	11	15	15	8	28	77
Rosseau Agr. Society.							
Judge—Jas. Boyd, Markham..							
R. G. Stoneman, Turtle Lake ...	Irish Cobbler.....	14½	16	18	10	21½	90
Wm. McCauley, Rosseau	do	14½	15½	18	9	31	88
Samuel Stoneman, Turtle Lake	do	14	16	18½	8	31	87½
Samuel Kettle, Jr., Maple Lake.	do	12½	16	17	10	30	85½
Wm. Stoneman, Turtle Lake ..	do	12	16	16	10	30	84½
Noah Argenson, Hekkla	Green Mountain..	13	15	17	10	29	84
F. A. Clubb, Rosseau	do ...	11½	16	16	10	30	83½

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
PARRY SOUND—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
ROSSEAU AGR. SOCIETY.—*Con.*							
Alex. Crawford, Rosseau	Early Middlesex..	13	16	16	10	28	83§
Cameron Hall, do	Bovee...........	12	16	17	8	28	81§
Jacob Emarson, Hekkla	Early Middlesex..	12	15	15½	9	27½	79§
John Crawford, Rosseau	Wellington.......	11	14	17	8	28	78§
Roger B. Mahon, do	Early Middlesex..	10	15½	15	10	26	76½§
Wm. Fry, do	Beauty of Hebron	9	15	15	8	28	75§
STRONG AGR. SOCIETY,							
Judge—Jas. Boyd, Markham.							
John Wilson, Sundridge	Green Mountain..	14	16	19½	10	31½	91
Cottrell Bros., do	Late Puritan.....	14	16	17½	10	34½	92§
Jas. Wilson, do	Green Mountain..	13½	16	18	10	32	89½
John Padget, do	do ...	12½	16½	19	10	30½	88½
Jas. Pryor, do	do ..	13	15½	18	10	31	87½
R. Vanmeer, do	do ...	12	16	18	8	33	87
F. W. Hannaford, do	do ...	12	16	16½	10	31	85½
John Willoughby, do	do ...	11½	15½	16	10	32	85
J. Minorgan, do	do ...	12½	16	16	9	31	84½
Geo. Butson, do	do ...	11½	16	16	10	30½	84
Samuel McGirr, do	do ...	12	15½	15	10	31	83½
Thos. Hodgson, do	do ...	11	16	15	10	29	81
John Anderson, do	Beauty of Hebron	12½	15	16	8	30	81½§
Thos. Willoughby, do	Green Mountain..	10	16	15	8	29	78
UNITED TOWNSHIPS AGR. SOCIETY.							
Judge—J. A. Kernahan Maxwell.							
Wm. Todd, Maple Island	Irish Cobbler.....	14	15	18½	9	34	90½
W. J. Dobson, Dunchurch	Green Mountain..	11½	14	15	10	35	85½
David Cuspe, do	do ...	14	14	18	9	29	84
John A. Labrash, Maple Island..	Irish Cobbler.....	13	15	11	10	34	83
Jas. Whitnell, Dunchurch	Green Mountain..	12	14	11	9	32½	78½
W. T. Lundy, do	do ..	12	14	14	8½	29½	78
Jas. W. Labrash, Maple Island..	Irish Cobbler.....	12	14	16	9	26½	77½
Walter Peary, do ..	do	11½	15	14	9	27½	77
F. MacFie, Dunchurch	Green Mountain..	12½	15	18	6	23½	75
PEEL.							
CALEDON AGR. SOCIETY.							
Judge—Wm. Hudd, Orangeville.							
W. J. Hillock, Caledon, R.R...	Green Mountain..	14	16	20	10	26	86
G. J. Lemon, do E. R.R. 2	do ..	13	15	18	10	29	85
Chas. Tribble, do R.R. 1	World's Wonder..	14	16	18	10	26	84
Albion Lemon, do R R. 1	Green Mountain..	14	14	20	10	24	82
Gilbert VanWyck, do R.R. 2	Mortgage Lifter..	13	15	17	10	26	81
L. M. Kinnon, do E. R.R. 1	Cobbler..........	13	15	19	10	22	79

NOTE. The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
RAINY RIVER.		(15)	(17)	(20)	(10)	(38)	(100)
ATWOOD AGR. SOCIETY.							
Judge—Alex. Morrison. Creemore.							
Jno. McVeigh, Sleeman	Green Mountain..	13	16	19	10	32	90
Wm. McKenzie, do	do ...	13	16	19	10	31	89
O. M. Isberg, do	Irish Cobbler.....	13	16	19	10	30	88
D. J. Ewald, Rainy River	do	13	16	17	10	29	85
Thos. Nolan, Sleeman	do	13	16	18	10	27	84
Arthur Armstrong, do	Hustler..........	13	16	18	9	27	83§
A. Russell, Rainy River	Irish Cobbler.....	12	16	15	9	24	76
SIMCOE.							
BARRIE AGR. SOCIETY.							
Judge—J. B. Kaye, Bracebridge.							
Geo. D. Coutts, Midhurst	Beauty of Hebron	14	16½	19½	10	32	92§
Jas. Spence, do	Gold Coin........	14	16	18½	10	31	89½
F. J. Frankcom, do	Carman..........	13	16	19	9	32	89
Francis Frankcom, do	do	12	16	18	10	31	87
Jas. J. Orok, do	Gold Coin........	12	15½	18	10	31	86½
Geo. Spence, do	do	12½	15	18	10	30½	86
G. Wingrove, Barrie, R.R. 2	Carman..........	12	15	19	10	29½	85½
W. L. Russell, Midhurst	do	12	15½	19	10	28	84½
Roy Hickling, Barrie, R.R. 2 ..	do	11	16	18	10	29	84
Jas. Doran, Midhurst	do	11½	16½	17	10	28	83
A. A. Garvin, do	Carman No. 2....	11	15	14	9	24	83
Robt. Coutts, do	do	11	15	15	5	24	70
NOTTAWASAGA AND GREAT NORTHERN AGR. SOCIETY.							
Judge—J. B. Kaye, Bracebridge.							
Isaac Aikins, Creemore, R.R. ..	Delaware........	14½	16½	19½	10	33	93½
Fred. Bryce, Batteau	do	14½	16	19	10	32	91½
Alex. Morrison, Creemore, R.R. 2	do	14	16	19½	10	31	90½
Mac Gadway, do R.R. 2	do	13	16	19	9	28½	85½
Robt. Giffin, do	do	13	15	17	10	30	85
David Smith, Smithdale	do	12	15	18	10	29	84
Arch. Robertson, Batteau	do	13	16	18	9	27½	83½
Alex. McDermid, do R.R. 1	do	12	16	18	9	27	82
Harry Stork, do R.R. 1	do	12	16	18	8	27	81
Frank Spearing, do R.R...	Green Mountain..	13	16	18	9	21½	77½
Geo. Glover, Collingwood, R.R. 2	do ...	11½	15½	16	9	25	77
Chas. Rodgers, Stayner, R.R. ..	Delaware........	9	14	15	9	23	70

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
TEMISKAMING.		(15)	(17)	(20)	(10)	(38)	(100)
CHARLTON AGR. SOCIETY.							
Judge—T. G. Raynor, Ottawa.							
Oswald Attewater, Charlton	Irish Cobbler.....	13½	16½	20	10	29½	89½
Fred. Pummell, do	do	13½	16½	20	10	29	89
N. M. Fraser, do	Early Ohio.......	14	14	20	10	27½	85½
Patrick Cuddy, do	Irish Cobbler.....	13½	16	20	6½	29	85
B. Densmore, do	do	12½	15½	19	10	23	80
John Morrisey, do	Early Eureka....	12	15½	19	10	23	79½
Bert Nickerson, do	Dooley...........	12	10	18½	10	28	78½
Fred. Kenny, do	Early Ohio.......	9½	14	20	10	20	73½
COCHRANE AGR. SOCIETY.							
Judge—T. G. Raynor, Ottawa.							
A. Sigouin, Cochrane	Green Mountain..	14½	15	15	10	33	87½
O. Sigouin, do	do ...	11½	16½	19	5	23	75
G. Cowan, Clute	do ...	8	16	19½	10	18½	72
J. T. Hale, Cochrane	Irish Cobbler.....	9	16	19½	9	18	71½
Neil McFee, do	do	10	15½	17	10	18½	71
W. Chalmers, do	Green Mountain..	9½	14	18	7	22	70½
I. Phillips, do	do ...	6½	16	18	10	19½	70
ENGLEHART AGR. SOCIETY.							
Judge—T. G. Raynor, Ottawa.							
Thos. S. Woolings, Englehart ..	Gold Coin........	14	16	20	10	33	93
D. Kerigan, do ..	Green Mountain..	14½	15	20	9	34	92½
Jas. Harman, Heaslip	Irish Cobbler.....	13	16	20	10	31½	90½
S. Buckborough, Tomstown	Green Mountain..	13½	14	18	10	28½	84
W. S. Edwards, Englehart	Delaware........	13½	15½	19	10	25½	83½
Geo. Will, do	do	13½	16	19	10	24½	83
Jno. F. Pillsworth, do	Gold Coin........	12	14	18	10	28½	82½
R. H. Emrick, Heaslip	Irish Cobbler.....	13½	10	18½	10	30	82
Geo. Harman, do	do	13	10	20	10	28½	81½
Jno. Allen, do	Snow Flake......	13½	10	20	10	29½	83½
A. W. Skinner, Englehart	Green Mountain..	13½	15	18½	7½	25	79½
Wm. H. Anyan, do	Gold Coin........	11½	16	19½	10	22½	79½
W. Pollock & Son, do	do	11	14	19	7	25	76
A. Houghton, Heaslip	Green Mountain..	13½	4	20	10	28½	76
T. J. Sword, do	Delaware........	13½	7	20	5	27½	73
Alf. Gehrig, Brentha	Irish Cobbler.....	11	14	18½	6½	20½	70½
THUNDER BAY.							
OLIVER AGR. SOCIETY							
Judge—Alex. Morrison, Creemore.							
John Fenton, Murillo	Carman No. 1.....	14	16	19	10	35½	94½
Alex. Trotter, Baird Station ...	Irish Cobbler.....	13	16	19	10	35½	93½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
THUNDER BAY.—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
OLIVER AGR. SOCIETY.—*Con.*							
R. J. Martyn, Murillo	Irish Cobbler.....	13	16	18	10	35	92
R. R. Everitt, do	Green Mountain..	13	16	18½	10	34	91½
Samuel McNally, do	Carman No. 1.....	13	16	18	10	34	91
Frank Cook, do	Irish Cobbler.....	13	16	17½	10	34	90½
Jno. McDonald, do	do	12	16	18	10	34	90
Jos. Berube, Baird	Carman No. 1....	13	16	18	10	32½	89½
Axel. Nordland, Murillo	White Elephant..	13	16	19	10	33	91§
H. T. Gray, Rosslyn Village	Irish Cobbler.....	12	16	18	10	32¾	88¾
E. E. Thomas, Intola	Carman No. 1.....	13	16	19	10	30½	88½
Roy Bingham, Murillo	do	13	16	17¼	10	32	88¼
A. Felker, do	Irish Cobbler.....	13	15	18	10	32	88
W. W. Fenton, do	Burbank.........	13	16	17¾	10	33	89¾§
Jas. Everitt, do	White Elephant..	13	16	18½	10	32	89½§
Alex. Reid, do	Irish Cobbler.....	12	15¼	17	10	33	87¼
Wm. Reid, do	do	12	15	17	10	33	87
Ross McKenzie, do	do	12	15½	17	10	32¼	86¾
Norman McNally, do	Uncle Sam.......	13	16	17	10	32½	88½§
Arthur Todd, do	Irish Cobbler.....	11	15	17	10	33	86
C. H. McNally, do	Uncle Sam.......	12	16	17¾	10	32	87¾§
Jas. Stevenson, do	Irish Cobbler.....	11	16	17	10	31½	85½
Albert Gorton, do	do	11	15¼	18	10	31	85¼
Harvey Gorton, do	do	11½	15	17	10	31	84½
A. Ahonen, do	Carman No. 1.....	10	15	17	10	31½	83½
Wm. Sim, do	White Elephant..	12	15	17	10	31	85§
Jos. Hughes, do	Green Mountain..	11	15	17	10	29½	82½
Thos. Fawcett, do	Irish Cobbler.....	11	15	17	9	29	81
R. B. Martin, do	do	11	14	15	10	30	80
Mrs. C. Bingham, do	do	11	15	14	10	28	78
WEST ALGOMA AGR. SOCIETY.							
Judge—F. F. Reeves, Humber Bay.							
J. R. Hutchinson, Slate River ..	Carman No. 1....	15	16	18	10	36	95
Ed. McGugan, do ..	Cobbler..........	13	16	18	8	32	87
Gilbert Arnold, c-o J. Toukin, Fort William	do	13	16	18	9	30	86
D. Gillespie, Slate River	Purizee..........	12	14	16	9	32	83
D. J. Piper, do	Cobbler..........	14	12	18	7	30	81
C. Hanna, Paipoonge	do	11	14	16	9	30	80
E. T. Ross, Port Arthur	....	13	13	16	7	30	79
A. Sear, Fort William	Cobbler..........	11	13	13	8	33	78
Wm. Barrie, Slate River	do	13	10	16	8	27	74
Geo. Scolfield, Fort William ...	do	11	12	15	8	27	73
WHITEFISH VALLEY AGR. SOCIETY.							
Judge—F. F. Reeves, Humber Bay.							
Fred Sitch, Hymers	Carman..........	13	16	18	10	36	93
T. W. Scott, do	Eureka..........	14	15	18	8	35	90
Geo. W. Hymers, do	do	14	15	18	8	34	89

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
THUNDER BAY.—*Continued.*		(15)	(17)	(20)	(10)	(38)	(100)
WHITEFISH VALLEY AGR. SOCIETY.—*Continued.*							
Wm. Couch, Gillies	Eureka	13	14	17	9	35	88
F. J. Killans, Flint	Beauty of Hebron	13	17	16	8	33	87
H. Wheal, Hymers	Eureka	12	15	15	10	34	86
Albert Parker, do	Cobbler	12	12	15	9	33	81
H. P. Sisson, do	do	12	14	18	7	29	80
B. Sutherland, do	do	13	12	15	8	28	76
Ernest Sitch, do	do	9	12	12	8	34	75
Arthur Sitch, do	Eureka	11	10	14	8	31	74
Wm. C. Grant, do	Carman	10	10	14	9	30	73
WELLAND.							
FENWICK AGR. SOCIETY.							
Judge—J. A. McDermid, Collingwood							
Fred. C. Haist, Ridgeville, R.R. 1	Green Mountain	11¼	15	17	9	24¾	77
A. E. Howell & Sons, Fenwick, R.R. 5	do	11	15	17	9	24	76
Jacob M. Haist, Ridgeville, R.R.1	do	10¾	15	17	9	23½	75¼
Asa E. Haist, Fenwick, R.R. 5	do	10½	15	17	9	23½	74½
Clemens Bros., do R.R. 5	do	10½	15	16	9	22¾	73¼
J. Harman Haist, do	do	11	12	18	9	22	72
H. Stirtzinger, do	do	10	15	17	9	20¾	71¾
Geo. Kappler, do	Delaware	8¾	15	17	9	21¼	71
J. L. Stirtzinger, do	Huskey Hustler	8½	15	17	9	20½	70
WELLINGTON.							
ERIN AGR. SOCIETY.							
Judge—Geo. E. Foster Honeywood.							
Jas. McKitrick, Orton	Green Mountain	14	15½	20	10	35½	95
Fred McMillan, Hillsburg	do	13	14	19	9½	34½	90
E. Barbour, do	do	14	16	19½	10	30	89½
R. D. Nodwell, do	Cobbler	13¾	16½	20	10	27¾	88
Jno. Smith, Waldemar	Dooley	13	12½	18	9½	24	87
S. W. Bingham, Hillsburg, R.R.2	Green Mountain	13	16	20	10	27½	86½
L. Overland, Erin	do	12½	14½	17	9	33	86
D. Gray & Son, Hillsburg	do	12½	14	17	9½	31	84
Jas. Milloy, Erin	do	13	14	17	8½	30½	83
W. H. Burrows, Hillsburg	do	13	15	18½	9½	26½	82½
Mack. Leitch, Guelph	do	12	14	16	9	31	82
McFee Bros., Erin	do	11	15	17	8	30	81
S. E. Griffin & Son, Acton	Dooley	11	15	17	9½	27½	80
J. W. Burt & Sons, Hillsburg	Green Mountain	13	15	14	10	27	79
H. L. Matheson, do R.R. 2	Dooley	11½	15	16½	10	25½	78½
Chester F. Burt, do	Green Mountain	11½	14	17	9½	25½	77½
Geo. Overland, Orton	do	12	12	17	8	27½	76½
A. Brown, Erin	Noxall	9	13	15	9½	23½	70

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

POTATOES.

Competitors in Order of Merit.	Name of variety.	*General appearance.	Freedom from blight and insects.	Method and thoroughness of cultivation.	Purity of variety.	†Apparent yield.	Totals of scores.
WENTWORTH.		(15)	(17)	(20)	(10)	(38)	(100)
Ancaster Agr. Society.							
Judge—W. McCrae, Guelph.							
W. E. Shaver, Ancaster	Green Mountain..	13	14	18	8	25	78
Ward Raelofson, do R.R. 1	do ...	12	15	18	7	25	77
Edward Lyons, do R.R. 1	Sir Walter Raleigh	12	16	17	7	26	78§
T. G. Brown, do	Dooley...........	12	15½	18	7	23	75½
Norman Shaver, do	do	13	14	18	8	22	75
J. L. Oakes, do R.R. 2	Green Mountain..	12	13	17	8	24½	74½
Jno. English, do	do ...	13	12	18	8	22	73
G. M. Brown, Jerseyville, R.R. 1	do ...	12	12½	17	8	23	72½
W. English, Ancaster, R.R. 1...	Davies Warrior...	12	15	17	8	20	72
Waterdown Agr. Society.							
Judge—Wm. McCrae, Guelph.							
R. Forth, Hamilton, R.R. 2	Carman..........	13	15	16	8	31	83
W. Thompson, Waterdown, R.R.	Comet...........	13	15	18	8	29	83§
Geo. Hood, do	do	13	15	17	8½	28	81½§
Wm. Attridge, do	Green Mountain..	13	15	17	8	26	79
Horning Bros., do	Carman..........	13	15	17	8	25½	78½
David Thompson, do	Comet...........	13	15	18	8	24	78§
J. Bennett, Campbellville, R.R. 2	Dooley...........	14	15	15	8	23½	75½
J. H. Drummond, Millgrove	Roxborough......	13	14	16	7	24	74§
H. J. Bennett, Campbelleville ..	Comet...........	13	14	16	7	23	73§
W. A. Drummond, Waterdown ..	Green Mountain..	11	14	15	8	24	72§
C. W. Goodbrand, Millgrove	do ...	11	12	17	6	24	70
YORK.							
Richmond Hill Agr. Society.							
Judge—F. F. Reeves, Humber Bay.							
Albert Jones, Maple, R.R...	Dooley...........	15	15	20	9	37	96
Wm. Burns, do	do	14	16	19	9	36	94
Peter Jones, do	Delaware.........	14	16	19	9	34	92
M. McQuarrie, do	Dooley...........	13	16	19	9	34	91
John Watson, do	Wellington.......	12	16	18	9	35	90
D. McMillan, do	Dooley...........	14	16	18	9	32	89
W. G. Woods, do	Treasurer........	15	16	19	9	29	88
Chas. Jones, do	Dooley...........	14	16	18	9	30	87
Chas. Boynton, Dollar	Noxall...........	11	16	17	9	33	86
Chas. DeFerrari, Maple R.R....	Dooley...........	12	15	17	8	33	85
A. McQuarrie, do	do	13	15	17	9	30	84
D. W. Clubine, Richmond Hill..	Hustler..........	13	16	14	9	30	82
F. W. Leatherdale, Maple, R.R...	Dooley...........	12	16	16	9	27	80
Arthur Hare, do	do	13	16	16	9	25	79
H. Hammond, Richmond Hill ..	Hustler..........	11	16	14	8	29	78
J. S. McNair, Elgin Mills	20th Century.....	12	16	16	9	23	76

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

MANGELS.

Competitors in Order of Merit.	Straightness of rows.	Method of seeding.	Proper thinning and cleaning.	Thoroughness of cultivation.	Freedom from insects and diseases.	Purity and uniformity of roots.	Shape and quality of roots.	Yield of roots per acre.	Totals of scores.
YORK.	(5)	(5)	(10)	(10)	(10)	(10)	(15)	(35)	(100)
SCARBORO AGR. SOCIETY.									
Judge—D. J. Gibson, Newcastle.									
W. A. Paterson, Agincourt	4	4	8	8	9	8	13	33	87
Wm. Clark, do	4	4	8	8	9	8	13	31	85
W. G. Rennie, do	5	4	9	9	7	8	13	29	84
Wm. Brown, do	4	4	9	8	8	7	12	30	82
Jas. Bell, Milliken	3	3	7	7	8	7	13	33	81
S. Stewart, Agincourt	3	4	7½	8	9	8	13	28	80½
Jas. Scott, do	3	4	8	9	9	8	13	26	80
E. J. Richards, Scarboro Jct. ..	4	4	8	7	8	6½	10	32	79½
D. A. Dunlop, Todmorden	3	4	7	6	8	6	11	34	79
F. Yeomans, Agincourt	4	4	8	9	9	9	13	22½	78½
C. L'Amaroux, Milliken	5	4	8	9	9	8	13	21	77
Crawford Bros., Agincourt	4	4	8	9	9	7	12	23	76
Gordon Patterson, do	4	3	8	7	9	8	12	24	75
A. E. Kennedy, do	3	4	8	7	9	7	12	21½	71½

NOTE.—The figures in parenthesis at the top are maximum possible scores.

RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

TURNIPS.

Competitors in Order of Merit.	Straightness of rows.	Method of seeding.	Proper thinning and cleaning.	Thoroughness of cultivation.	Freedom from insects and diseases.	Purity and uniformity of roots.	Shape and quality of roots.	Yield of roots per acre.	Totals of scores.
BRANT.	(5)	(5)	(10)	(10)	(10)	(10)	(15)	(35)	(100)
PARIS AGR. SOCIETY.									
Judge—Jas. Pullin, Woodstock.									
D. A. Holmes, Paris	5	4½	9	9	10	8	13	32	90½
Haas Bros., do	4½	4½	9	9	9	8½	13	32	89½
J. R. Moyle, do	3	4	10	9	9	9	13	32	89
Jos. Martin, do	5	5	9	9	9½	8	13	30	88½
W. Parnell, Richwood	4	4	9	9	9	9	13	30	87
Austin Clement, Paris	4	5	8½	9	8	8	13	27	82½
I. Sayles, do	4	4	8	6	9	8	13	30	82
Jno. Dawson, Burford	4	4	8	9	8	8	12	27	80
Geo. Bone, Paris	3	4	7	7	8	8	13	29	79
Kyle Bros., Drumbo	4	4	8½	9	9	6	12	26	78½
D. Patton, Paris	4	4	8	8	8	7	12	27	78
J. H. McGill, Princeton	5	4½	8	7	8	8	11	26	77½
O'Neail Bros., Paris	4½	4	9	8	6	6	11	28	76½
Albert Gilbert, do	4	4	6	9	8	8	10	27	76
W. D. Barker, do	5	4	9	9	7	5	11	25	75
R. J. McCormick, do	5	4	7	7	8	7	12	24	73
Allan Edgar, do	4	3	8	6	8	7	10	26	72
GREY.									
PROTON AGR. SOCIETY.									
Judge—W. P. Hinman, Toronto.									
Geo. Bell, Corbetton, R.R. 3	5	5	10	9	9	9	13	35	95
Middleton Bros., Dundalk, R.R. 1	5	5	10	9½	10	9	13	32⅔	94⅙
Jno. McQuarrie, do R.R. 2	5	5	10	9¼	9	9	13	33¾	94
Jas. A. Fraser, do R.R. 2	5	5	9½	9½	9¼	9	13	33½	93¾
J. McPherson & Sons, do R.R. 2	5	5	9½	9½	9	9½	13	33	93½
A. Clark & Sons, do R.R. 2	5	5	10	8	8	10	13	33½	92½
R. Fowler & Sons, do R.R. 2	5	5	9	7½	10	9½	13	32	91
P. Fernane & Sons, do R.R. 2	5	5	10	9	9	5	13	34½	90½
T. Watton, do R.R. 1	5	5	9	8	9	9	12	32½	89½
R. J. Cornett, do R.R. 3	5	5	8½	9	10	9	12	31	89½
R. J. Cronin & Son, Riverview, R.R. 1	5	5	8½	8	10	8	13	29½	87
R. R. Kimell & Son, Hopeville, R.R. 1	5	5	8	8	10	9	12	28	85
WELLINGTON.									
MT. FOREST AGR. SOCIETY.									
Judge—W. P. Hinman, Toronto.									
T. R. Bowman, Mt. Forest, R.R. 2	5	5	10	9	10	9	14	32⅓	94⅓
Jno. Hersley, do R.R. 1	5	5	10	9½	10	9	13	32⅔	94⅙
J. Dingwall, Holstein	5	5	9½	9½	9½	9½	13¼	32½	93¾

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RESULTS OF COMPETITIONS IN STANDING FIELD CROPS.—*Con.*

TURNIPS.

Competitors in Order of Merit.	Straightness of rows.	Method of seeding.	Proper thinning and cleaning	Thoroughness of cultivation.	Freedom from insects and diseases.	Purity and uniformity of roots.	Shape and quality of roots.	Yield of roots per acre.	Totals of scores.
WELLINGTON.—*Continued.*	(5)	(5)	(10)	(10)	(10)	(10)	(15)	(35)	(100)
MOUNT FOREST AGR. SOCIETY.—*Continued.*									
Irwin Robb, Mt. Forest, R.R. 2	5	5	9¼	9	10	9	13	33	93¼
Dan. Murphy, do	5	5	9½	9½	9¼	9¼	13	29¾	90¼
Jno. D. Ross, do R.R. 1	5	5	9	9¼	8	9	13	30¾	89
Brown Bros., do	5	5	9	8	9	8	13	31½	88½
Anson Kirkness, do	5	5	8½	8	9	9	12	31½	88
J. A. Douglas, do	4¾	4½	9	8	10	9½	12½	29½	87¾
Alf. Hutchinson, do R.R. 4	5	5	9	7	8	8½	13	30	85½
YORK.									
MARKHAM AND E. YORK AGR. SOCIETY.									
Judge—D. English, Burketon.									
W. G. Rennie, Agincourt	5	5	8	9	9	9	14	32	91
D. Tran, Claremont, R.R. 2	4½	5	9	8½	9	8	14	32	90
Jas. Torrance, Markham	5	5	8	10	9	8	14	30	89
W. G. Maxwell, do	4½	5	8	10	8	10	12	30	87½
W. Thompson & Sons, Markham, R.R. 4	5	5	8½	9	8½	8½	12	30	86½
J. I. Balsdon & Sons, Markham, R.R. 2	5	5	9	9	8	8	12	30	86
R. R. Johnson, Stouffville	4½	5	8	9	9	8	12	30	85½
W. Boynton, Gormley, R.R. 2..	4½	5	7	8	8	8	12	29	81½
W. F. Elliott, Unionville	5	4	7	7	8	9	12	28	80
T. H. Reesor, Markham	4½	4	7	8	8	8	12	28	79½
W. P. Johnson, Stouffville, R.R.	4	4	7	8	8	8	12	28	79
C. Boynton, Gormley	4	4	7	6	7	8	12	28	76

NOTE.—The figures in parenthesis at the top are maximum possible scores.

GRAIN FROM STANDING FIELD CROP COMPETITIONS.

Prize Winners at the Canadian National Exhibition, 1920.

Prize Won.	Competitor and Address.	Variety.
OATS.	*Grain in Sacks.*	
Division No. 1—		
1st	H. L. Goltz, Bardsville	O. A. C. 72.
2nd	Sherman Polmateer, Gravenhurst	O. A. C. 72.
3rd	A. R. Ascough, Kenora	Gold Rain.
Division No. 2—		
1st	Robt. H. Smith, Galetta, R.R. 1	O. A. C. 72.
2nd	C . A. Kincaid, Kingston, R.R. 1	O. A. C. 72.
3rd	W. T. Arkinstall, Dunvegan, R.R. 2	Banner.
4th	Geo. F. Griffin, Stirling	Banner.
Division No. 3—		
1st	McCowan Bros., Scarboro	Yellow Russian.
2nd	Jno. G. Spier, Brussels, R.R. 2	O. A. C. No. 72.
3rd	John D. Frazer, Stratford, R.R. 5	O. A. C. No. 72.
4th	J. S. Baird, Scarboro Jct., R.R. 1	O. A. C. No. 72.
BARLEY.		
Division No. 3—		
1st	A. W. Vansickle, Onondaga	O. A. C. No. 21.
2nd	R. J. Robertson, Cainsville, R.R. 1	O. A. C. No. 21.
3rd	Jas. E. Walker, Caledonia, R.R. 2	O. A. C. No. 21.
FALL WHEAT.		
Division No. 2—		
1st	D. O. Henry, Millbrook	....
2nd	Garfield Kennedy, Bobcaygeon	Sleep and I'll Pay the Rent.
Division No. 3—		
1st	Geo. R. Barrie & Son, Galt, R.R. 7	Dawsons G. Chaff.
2nd	Geo. A. Poole, Harley, R.R. 1	Dawsons G. Chaff.

GRAIN FROM STANDING FIELD CROP COMPETITIONS.—*Continued.*

PRIZE WINNERS AT THE CANADIAN NATIONAL EXHIBITION, 1920.—*Continued.*

Prize Won.	Competitor and Address.	Variety.
OATS.	*Sheaf Exhibit.*	
Division No. 1—		
1st	Wm. Naismith, Falkenburg	O. A. C. No. 72.
2nd	H. L. Goltz, Bardsville	O. A. C. No. 72.
3rd	Thos. Aikens, Port Carling	O. A. C. No. 72.
4th	Sherman Polmateer, Gravenhurst	O. A. C. No. 72.
Division No. 2—		
1st	Thos. Cosh, Bobcaygeon	Yellow Russian.
2nd	John Lean, Cameron, R.R. 2	Yellow Russian.
3rd	M. M. Boyd, Bobcaygeon	Banner.
4th	Arch. Greer, Mansfield	Imp. Banner.
Division No. 3—		
1st	McCowan Bros., Scarboro	Yellow Russian.
2nd	Jas. D. Little, Teeswater	O. A. C. No. 72.
3rd	R. E. Mortimer, Honeywood	Marguerite.
4th	Russell See, Bolton, R.R. 4	O. A. C. No. 72.
BARLEY.		
Division No. 3—		
1st	R. J. Robertson, Cainsville, R.R. 1	O. A. C. No. 21.
2nd	A. W. Vansickle, Onondaga	O. A. C. No. 21.
3rd	Russell See, Bolton, R.R. 4	O. A. C. No. 21.
4th	Jas. E. Walker, Caledonia, R.R. 2	O. A. C. No. 21.
FALL WHEAT.		
Division No. 2—		
1st	Geo. Kimble, Bobcaygeon	Sleep and I'll Pay the Rent.
2nd	H. R. Seymour, Bobcaygeon	Sleep and I'll Pay the Rent.
3rd	Garfield Kennedy, Bobcaygeon	Sleep and I'll Pay the Rent.
4th	Thos. H. Martin, Bobcaygeon	Sleep and I'll Pay the Rent.
SPRING WHEAT.		
Division No. 2—		
1st	W. P. Johnson, Stouffville	Goose.
Division No. 3—		
1st	W. H. Wellman, Gormley, R.R. 2	Marquis.

GRAIN FROM STANDING FIELD CROP COMPETITIONS.—*Continued.*

PRIZE WINNERS AT THE CENTRAL CANADA EXHIBITION, 1920.

Prize Won.	Competitor and Address.	Variety
OATS.	*Grain in Sacks.*	
1st	H. L. Goltz, Bardsville	O. A. C. No. 72.
2nd	W. T. Arkinstall, Dunvegan, R.R. 2	Banner.
3rd	Sam'l McMillan, Cobden, R.R. 6	Banner.
4th	Jas. R. Fallis, Brampton	Abundance.
FALL WHEAT.		
1st	Geo. R. Barrie & Son, Galt, R.R. 7	Dawson's G. Chaff.
2nd	Garfield Kennedy, Bobcaygeon	Sleep and I'll Pay the Rent.
SPRING WHEAT.		
1st	Wm. G. Woods, Maple, R.R. 2	Marquis.
BARLEY.		
1st	Wm. Cleland, South Mountain, R.R. 1	Six-Rowed.
OATS.	*Sheaf Exhibit.*	
1st	H. L. Goltz, Bardsville	O. A. C. No. 72.
2nd	A. J. Bushfield, Lyn	O. A. C. No. 72.
3rd	W. T. Arkinstall, Dunvegan, R.R. 2	Banner.
4th	A. R. Ascough, Kenora	Gold Rain.
FALL WHEAT.		
1st	Garfield Kennedy, Bobcaygeon	Sleep and I'll Pay the Rent.
BARLEY.		
1st	A. W. Vansickle, Onondaga	O. A. C. No. 21.
2nd	Wm. Cleland, South Mountain, R.R. 1	Six-Rowed.

GRAIN FROM STANDING FIELD CROP COMPETITIONS.—*Continued.*

PRIZE WINNERS AT THE ONTARIO PROVINCIAL WINTER FAIR, GUELPH, 1920.

Prize Won.	Competitor and Address.	Variety.
OATS.	*Grain in Sacks.*	
1st	Wm. Hutcheon, Rockwood, R.R. 1	O. A. C. No. 72—(Championship).
2nd	A. & W. McKague, Teeswater	O. A. C. No. 72.
3rd	S. W. Bingham & Sons, Hillsburg	Reg. Banner.
4th	H. L. Goltz, Bardsville	O. A. C. No. 72.
5th	S. E. Griffin & Son, Acton, R.R. 2	Banner.
6th	D. A. McNaughton, Puslinch, R.R. 2	O. A. C. No. 72.
7th	Andrew Schmidt, Mildmay, R.R. 1	Banner.
8th	Fred. Poole, Bronte, R.R. 1	O. A. C. No. 72.
9th	J. A. Cockburn & Sons, Puslinch, R.R. 1.	O. A. C. No. 72.
10th	A. K. Campbell, Strathroy, R.R. 1	O. A. C. No. 72.
SPRING WHEAT.		
1st	Jno. I. Balsdon & Sons, Markham, R.R. 2	Goose.
2nd	Wm. Hutcheon, Rockwood, R.R. 1	Marquis.
3rd	H. A. Cormack, Arthur	Goose.
FALL WHEAT.		
1st	J. A. Cockburn & Son, Puslinch, R.R. 1.	O. A. C. No. 104—(Championship).
2nd	D. A. Henry, Millbrook, R.R. 2	....
3rd	H. MacPherson, Norwich, R.R. 3	Dawson's G. Chaff.
4th	David Roger, St. Mary's, R.R. 1	Dawson's G. Chaff.
5th	Wm. W. Harding, St. Mary's, R.R. 1	Dawson's G. Chaff.
BARLEY.		
1st	R. J. Robertson, Cainsville, R.R. 1	O. A. C. No. 21.
2nd	Russell See, Bolton, R.R. 1	O. A. C. No. 21.
3rd	Thos. Thomson, Cainsville, R.R. 2	O. A. C. No. 21.
PEAS.		
1st	A. Mielhausen, Lion's Head	Golden Vine.
2nd	Wm. G. Bray, Sr., Lion's Head, R.R. 1	Golden Vine.
CORN (FLINT).		
1st	R. J. Johnston, Chatham, R.R. 3	Longfellow.
2nd	A. S. Maynard, Chatham, R.R. 3	Salzer's N. Dakota.
3rd	W. T. Pegg, Blenheim, R.R. 3	Longfellow.
4th	Robt. G. Dawson, Niagara-on-the-Lake.	Salzer's N. Dakota.
CORN (DENT).		
1st	B. R. Cohoe, S. Woodslee	Wisconsin No. 7.
2nd	Thos. Deslippe, Amherstburg, R.R. 1	Wisconsin No. 7.
3rd	Ed. A. Deneau, North Malden, R.R. 1	Wisconsin No. 7.
4th	W. A. Bailey, Amherstburg, R.R. 1	Wisconsin No. 7.
5th	Arch. MacColl, Rodney, R.R. 2	Wisconsin No. 7.
POTATOES.		
1st	Wm. Naismith, Falkenburg	Dooley.
2nd	H. L. Goltz, Bardsville	Gold Coin.
3rd	Wm. Attridge, Waterdown	Green Mountain.
4th	Thos. Fothergill, Bronte, R.R. 1	Dooley.
5th	Wm. G. Woods, Maple, R.R. 2	Treasurer.
MANGELS.		
1st	W. G. Rennie, Agincourt	Red Leviathian.
TURNIPS.		
1st	Jos. Martin, Paris, R.R. 3	New Century.
2nd	W. G. Rennie, Agincourt	Swede.
3rd	Alfred Hutchinson, Mount Forest, R.R. 4.	Swede.

GRAIN FROM STANDING FIELD CROP COMPETITIONS.—*Continued.*

PRIZE WINNERS AT THE OTTAWA WINTER FAIR. OTTAWA, 1921.

Prize Won.	Competitor and Address.	Variety.
OATS.	*Grain in Sacks.*	
1st	John English, Norwood, R.R. 3	White Wave.
2nd	Luther E. Mountjoy, Burketon Jct.	Irish.
3rd	F. R. Gourlay, Kinburn	Banner.
4th	David Graff, Powassan, R.R. 4	Imperial.
5th	A. B. McLeod, Woodville	Sheffield.
6th	John Lean, Cameron, R.R. 2	Yellow Russian.
7th	Harry Wheal, Hymers	O. A. C. No. 72.
8th	A. L. Pascoe, Hampton, R.R. 1	O. A. C. No. 72.
9th	Barber Bros., Rossmore	Yellow Russian.
10th	Morris Huff, Bloomfield, R.R. 1	O. A. C. No. 72.
SPRING WHEAT.		
1st	Sam'l McMillan, Cobden, R.R. 6	Marquis.
2nd	Walter J. Burns, Cobden, R.R. 3	Marquis.
3rd	Arthur Johnston, Cobden, R.R. 4	Marquis.
4th	Gregor MacIntyre, Renfrew	Marquis.
FALL WHEAT.		
1st	D. A. Henry, Millbrook	Dawson's G. Chaff.
2nd	W. R. N. Sharpe, Ida, R.R. 1	Dawson's G. Chaff.
CLOVER.		
1st	J. S. Corner. Oxdrift	Alsike.
2nd	Thos. H. Lewis, Oxdrift	....
CORN (DENT).		
1st	B. R. Cohoe, South Woodslee	Wisconsin No. 7.
2nd	Wm. A. Bailey, Amherstburg, R.R. 1	Wisconsin No. 7.
3rd	Edward A. Deneau, N. Malden, R.R. 1	Wisconsin No. 7.
4th	J. A. King, Wardsville	White Cap Yel. Dent.
5th	Arch. MacColl, Rodney, R.R. 2	Wisconsin No. 7.
CORN (FLINT).		
1st	R. J. Johnston, Chatham, R.R. 3	Longfellow.
2nd	A. S. Maynard, Chatham	Salzer's N. Dakota.

OATS.

Competitors who will thresh and keep separate grain from the fields entered in the Standing Field Crop Competitions.

W. Henderson, Lucknow, R.R. 3.
Jno. Webster, Lucknow, R.R. 2.
John McLeod, Lucknow, R.R. 5.
K. R. McKenzie, Lucknow, R.R. 5.
Peter Watson, Lucknow, R.R. 1.
W. A. Wilson, Lucknow.
W. J. Irwin, Lucknow, R.R. 6.
T. Goodfellow, Teeswater.
R. Keith, Teeswater.
T. B. Aitken, Teeswater.
Thos. Moffat, Teeswater.
Jas. L. Tolton, Walkerton.
N. Durrer, Mildmay.
G. B. Armstrong, Teeswater.
Andrew Schmidt, Mildmay.
M. Weiler, Formosa.
John Lints, Mildmay.
D. Borho, Formosa.
S. Schmidt, Formosa.
W. A. Rowland, Walkerton, R.R. 1.
W. A. Tolton, Walkerton.
R. and J. Woods, Metcalfe.
Alex. Dow, Metcalfe.
H. J. Craig, Metcalfe.
G. A. Latimer, Metcalfe.
Geo. Acres, Vernon.
C. L. Powers, Orono.
R. Luxon, Orono.
C. A. Chapman, Orono.
J. T. Chapman, Orono.
A. W. Annis, Tyrone.
R. E. Osborne, Bowmanville, R.R. 2.
Jas. Leask & Son, Taunton.
John Baker, Hampton, R.R. 1.
L. T. Pascoe, Hampton, R.R. 1.
M. Fowler, Kingston, R.R. 1.
Thos. Doyle, Kingston, R.R. 1.
J. S. Sibbitt, Kingston, R.R. 1.
Jas. Mulvenia, Kingston, R.R. 1.
J. S. Yeomans, Collins Bay.
J. S. Knight, Cataraqui.
Wm. Allum, Wolfe Island, R.R. 4.
David Watts, Wolfe Island, R.R. 4.
M. Wiggins, Wolfe Island, R.R. 2.
Wm. Pollock, Meaford, R.R. 1.
H. Gilmore, Meaford, R.R. 1.
R. A. Loucks, Rocklyn, R.R. 2.
W. A. Johnstone, Meaford, Box 332.
Jno. F. Eaton, Meaford, R.R. 1.
E. Buckingham, Maxwell.
J. A. Kernahan, Maxwell.
Sam'l Hawton, Feversham.
W. H. Hall, Southampton.
E. Hawton, Feversham.
L. W. Kerton, Maxwell.
A. Morrison, Maxwell.
R. J. Alister, Feversham.
Wm. McLoughry, Markdale, R.R. 4.
Geo. McDonald, McIntyre.
Jos. Allison, Maxwell.
W. H. Sewell, Blantyre.
J. A. Berry, Meaford, R.R. 4.
M. Abercrombie, Meaford, R.R. 4.
Wm. Langtre, Meaford, R.R. 4.
R. J. Dunlop, Meaford, R.R. 4.
G. L. Sewell, Meaford, R.R. 2.
J. A. Dixon, Varney, R.R. 1.
Jos. H. David, Greenview.
H. Bahm, Maynooth.
Wm. S. Kelusky, Maynooth.
W. Kelusky, Maynooth.
Jno. McAlpine, Maynooth.
Jno. S. Walker, Mt. Brydges.
Malcolm Leitch, Strathroy.
H. Mathews, Putnam.
Cecil Beecham, Mossley, R.R. 2.
R. G. Boxall, Mossley, R.R. 2.
Jos. Woods, Dorchester, R.R. 1.
A. A. Irwin, Dorchester, R.R. 1.
W. P. Corneil, Appin.
Fred Eaton, Appin.
M. McNeil, Melbourne.
M. McGugan, Melbourne.
H. A. Fletcher, Melbourne.
W. L. Corbett, Ailsa Craig, R.R. 2.
Fred. J. Neil, Ailsa Craig, R.R. 3.
W. H. Reycraft, Glencoe.
D. N. Munroe, Glencoe.
W. A. McCutcheon, Glencoe.
John Oliver, Denfield, R.R. 1.
J. C. Shipley, Ailsa Craig, R.R. 1.
M. C. Toohill, Strathroy, R.R. 3.
Jas. Sabine, Strathroy, R.R. 2.
D. Limon & Son, Strathroy, R.R. 2.
A. Cowan, Courtland.
J. F. Robinson, Courtland.
C. W. Graydon, Delhi, R.R. 3.
P. Mabee, Tillsonburg, R.R.
Jos. Alston, Powassan.
L. A. Purdon, Powassan.
Arthur Purdon, Powassan, R.R. 2.
E. J. Purdon, Powassan.
D. McIntyre, Powassan, R.R. 1.
John Hogen, Powassan.
Wm. Bartrow, Powassan.
Jas. Oldfield, Powassan.
John McCans, Rosseau.
A. Jenkin, Emsdale.
John Haggart, Loring.
R. Yeo, Loring.
Jos. Bell, Burk's Falls.
Jas. Webber, Burk's Falls.
Herman Smith, Burk's Falls.
Jas. Thompson, Burk's Falls.
H. Bentley, Burk's Falls.
E. Jenkins, Burk's Falls.
Wm. Rennie, Campbellford.
H. Libby, Fern Glen.
J. Frasier, Stratford, R.R.
Geo. Gibb, Stratford, R.R. 3.
Jas. Bradley, Stratford, R.R. 1.
J. C. Cook, Stratford, R.R. 1.
Gordon Mann, Peterborough, R.R. 4.
S. McIntyre, Keene, R.R. 2.
Jno. E. Manley, Peterborough, R.R. 8.
W. A. Drummond, Peterborough, R.R. 8.

Oats.

Competitors who will thresh and keep separate grain from the fields entered in the Standing Field Crop Competitions.—*Continued.*

Herb. McFarlane, Peterborough, R.R. 8.
S. M. Comrie, Peterborough, R.R. 8.
Alex. Wood, Keene, R.R. 1.
C. C. Nelson, Peterborough, R.R. 8.
H. Weir, Lang.
W. A. Nelson, Keene, R.R. 1.
R. E. Drummond, Peterborougn, R.R. 8.
R. A. Nelson, Keene, R.R. 1.
F. A. Eason, Keene, R.R. 1.
Wm. Young, Arnprior.
M. McLaren, Arnprior.
Wm. P. Dillon, Arnprior.
A. Russell, Jr., Arnprior.
Sam'l McMillan, Cobden.
D. H. Dick, Omemee.
Daniel Haist, Ridgeville, R.R. 1.
J. H. Haist, Fenwick, R.R. 5.
J. M. Haist, Fonthill.
J. H. Anderson, Fergus.
C. H. Harris, Rockwood.
Jos. Gahan, Rockwood.
W. G. Chapman, Rockwood.
A. F. Auld, Guelph, R.R. 2.
John Cummings, Rockwood.
Melvin Burns, Rockwood, R.R. 4.
H. Boyd, Russell.
Dougal Cummings, Russell.
Duncan Cummings, Russell.
C. Pillar, Russell.
E. Craig, Russell.
John F. Blane, Renfrew.
G. MacIntyre, Renfrew.
F. H. Johnston, Renfrew, R.R. 5.
J. F. Gibbons, Renfrew, R.R. 3.
R. B. Leitch, Renfrew, R.R. 3.
M. Gilbert, Demorestville.
B. R. Leavens, Bloomfield.
E. B. Purtelle, Bloomfield.
E. W. Gorsline, Picton, R.R. 8.
W. Rightmyer, Picton, R.R. 8.
K. Spafford, Picton, R.R. 8.

Competitors who will thresh and keep separate grain from the fields entered in the Standing Field Crop Competitions.

Barley.

A. W. Vansickle, Onondaga.
D. B. Campbell, Cainsville, R.R. 2.
R. J. Robertson, Cainsville, R.R. 1.
H. Preiss, Middleport.
Thos. Thompson, Cainsville, R.R. 1.
Geo. Thomson, Cainsville, R.R. 1.
M. N. Simpson, Cainsville, R.R. 1.
H. H. Howell, Cainsville, R.R. 1.
C. W. Burrill, Cainsville, R.R. 2.

Spring Wheat.

John Webster, Lucknow, R.R. 2.
Wm. Young, Arnprior.
Arthur Johnston, Cobden, R.R. 4.
Walter Galbraith, Renfrew, R.R. 3.
Gregor MacIntyre, Renfrew.
J. M. Airth, Renfrew.
R. B. Leitch, Renfrew, R.R. 3.
Jno. Boyington, Gormley, R.R. 2.
J. S. Lawrie, Agincourt.
J. I. Balsdon & Sons, Markham, R.R. 2.
Jas. Torrance, Markham.
Jno. Young & Son, Milliken.
Jas. McLean, Richmond Hill.
Wm. G. Woods, Maple, R.R. 2.
W. H. Wellman, Gormley, R.R. 2.
G. H. Peplar, Richmond Hill.
Fred. A. Clark, Gormley, R.R. 2.
J. Brillinger, Richmond Hill.
Geo. Mathewson, Maple.
Robt. Walkington, Maple, R.R. 2.
T. E. Boynton, Gormley, R.R. 2.

Fall Wheat.

H. Courtney, Ripley, R.R. 1.
Thos. J. Scott, Ripley, R.R. 1.
W. C. Smith, Ripley, R.R. 1.
A. Jarvis, Teeswater.
David McDonald, Teeswater.
Robert Keith, Teeswater.
Jas. D. Little, Teeswater.
John McRae, Teeswater.
T. A. Goodfellow, Teeswater.
Jos. McKague, Teeswater.
W. J. Weed, Alvinston, R.R. 7.
D. G. Maddock, Alvinston, R.R. 7.
John Willer, Watford, R.R. 2.
D. A. McIntyre, Alvinston, R.R. 7.
A. T. McLachlin, Alvinston, R.R. 4.
B. Atkinson, Wellandport.
L. F. Blanchard, Wellandport.
Alex. Rettie, Norwich.
John Wilson, Burgessville.
B. G. Palmer, Norwich.
E. B. Palmer, Norwich, R.R. 3.
Howard Jull, Norwich, Box 68.
Ira Tisdale, Norwich.
Geo. P. Moore, Galt, R.R. 7.
Lincoln Hagey, Blair, R.R.
Geo. R. Barrie & Son, Galt, R.R. 7
A. G. Taylor, Galt, R.R. 7.
Jno. A. Dawson, Burford, R.R. 1.
J. A. Cockburn, Puslinch, R.R. 1.
Jno. W. Kerr, Puslinch, R.R. 1.
Andrew Scott, Puslinch, R.R. 1.
Jas. Clark, Puslinch, R.R. 1.
Neil Stewart, Morriston.
C. A. McNeil, Maple.
W. Stevenson, Woodbridge.
J. W. Wallace, Woodbridge.
Robt. Orr, Maple.
J. Killam, Kleinburg.
Geo. Mathewson, Maple.
Arch. Cameron, Woodbridge.
Jno. Campbell, Woodbridge.
Nelson Snider, Woodbridge.
Wm. Kyle, Maple.
Wm. Cameron, Woodbridge.

Ontario Department of Agriculture

FIFTEENTH ANNUAL REPORT

OF THE

Horticultural Societies

FOR THE YEAR

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
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1921

To His Honour LIONEL H. CLARKE,

Lieutenant Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present herewith for your consideration the Report of the Horticultural Societies of Ontario for the year 1920.

Respectfully yours,

MANNING W. DOHERTY,

Minister of Agriculture.

TORONTO, 1921.

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ANNUAL REPORT

OF

The Horticultural Societies of Ontario

1920

To the Honourable Manning W. Doherty, Minister of Agriculture:

SIR,—I am herewith transmitting the fifteenth Annual Report of the Horticultural Societies of Ontario and of the Convention held in Toronto on February 10th and 11th, 1921. Twenty new Societies in different sections of the Province were organized last year, making a total of 120, with a paid membership of 29,000, an increase of 9,000 over the previous year. There are already applications from twenty-one towns, villages and rural municipalities desiring incorporation as Societies in April. It is the aim of the Societies to have a membership of 50,000 by 1925, and I am of opinion that they will succeed in their laudable anticipation. No organization doing similar work on this continent has achieved such marvellous success, and the home builders of Ontario are justly proud of the good work that is being accomplished.

All of which is respectfully submitted.

Faithfully yours,

J. LOCKIE WILSON,
Superintendent.

OFFICERS AND DIRECTORS, 1920

President	Miss Mary Yates, Port Credit.
First Vice-President	Rev. W. M. McKay, Weston.
Second Vice-President	J. P. Jaffray, Galt.
Secretary and Editor	J. Lockie Wilson, Toronto.
Treasurer	C. A. Hesson, St. Catharines.

Directors: District No. 1, Rev. A. H. Scott, D.D., F.R.H.S., Perth; District No. 2, H. A. Middleton, Lindsay; District No. 3, Chas. Wilson, Fort William; District No. 4, T. D. Dockray, Toronto; District No. 5, W. B. Burgoyne, St. Catharines; District No. 6, Wm. Hartry, Seaforth; District No. 7, J. E. Carter, Guelph; District No. 8, Dr. F. E. Bennett, St. Thomas; District No. 9, J. E. Brown, Kingsville.

Auditors: W. J. Evans, Toronto; W. T. Graham.

Representative to Canadian National Exhibition: Wm. Fountain, Toronto.

Representatives to Royal Agricultural Winter Fair: W. J. Evans, Toronto; J. M. Pearen, Weston; Miss Mary Yates, Port Credit.

Representatives to American Civic Association: G. H. M. Baker, Lindsay; J. Lockie Wilson, Toronto, and C. A. Hesson, St. Catharines.

TREASURER'S STATEMENT

Receipts.

Balance on hand as per statement of February 4th, 1920	$451 01
Affiliation fees, arrears	3 00
Affiliation fees, account year 1919-20	95 00
Affiliation fees account year 1920-21	183 00
Exchange on cheques	55
Bank interest to November 30th, 1920	10 51
	$743 07

Expenditures.

Assistants at Convention	$25 00
Haynes Press, printing ballots	1 50
C.P.R. Telegraph Co., President's Account with Ex. *re* increased grant	35 25
Legg Bros., Ltd., letter heads and envelopes	35 00
Mr. W. Hartry, allowance for delegate to Am. Civic Association	50 00
Honorarium for Secretarial work	100 00
Treasurer's account for postage, war stamps and stationery	3 75
Exchange on affiliation fee cheques	3 70
Total expenditure	$254 20
Balance on hand	488 87
	$743 07

C. A. Hesson, *Treasurer*.

St. Catharines, February 9th, 1921.

ONTARIO HORTICULTURAL ASSOCIATION

ANNUAL CONVENTION

Through the courtesy of the authorities of the University of Toronto in supplying a hall for the occasion, the Fifteenth Annual Convention of the Ontario Horticultural Association was held in Hart House, on February 10th and 11th, 1921. A large number of enthusiastic delegates representing all sections of Ontario were present and took the greatest interest in the proceedings.

PRESIDENT'S ADDRESS.

G. H. M. BAKER, LINDSAY.

On behalf of the officers and directors of this Association, I extend to each and everyone present the heartiest welcome that we can give.

From a small beginning we have grown to 120 branch Societies, with a paid membership of over 29,000 and an expenditure, in 1919, on horticulture of over $70,000, a sum more than four times the grant from the Government for that year, and we are still in our teens.

There are many things we must and will take up. A first place should be given to the question of Botanic Gardens, and the establishment of special facilities for the practical and scientific training of men and women in Horticulture. Prof. Thomson, of Toronto University, told the Association last year that they had a scheme on foot for the establishment of such Botanic Gardens near Toronto, and that the Horticultural Association would be made very welcome and given an opportunity to help in the realization of the scheme. We can assure the university authorities of our sympathy and co-operation with such an object.

We need in Canadian Horticulture a Training School in Horticulture. We have nothing in Canada at the present time which is making any real effort in that connection at all.

We need also to take up seriously the matter of developing better varieties because we are now able to command some scientific knowledge, made available with regard to the breeding of plants. There is untold wealth to be created by our hands. We have before us a wonderful opportunity. The best Horticultural Societies in the country to the south of us, point to us as a model. They have nothing like the organization of horticultural interest that we have. We have a working force that means a great deal, but we must keep up that good reputation by going forward in all lines of our work.

Let us take notice of what our members and friends in this Convention have to say, and above all we must be united, helping those who help us and standing up for those who are spending their time and money to further the interests of the work we have in hand and before us.

Our directors are ready and willing to assist the branches already in existence, and to help organize and bring in new Societies.

The delegates should stand behind the directors, urge them to ask them for speakers and photo views, which we should have a good supply of, and any information you may require.

Make the work of your several Societies show up to good advantage, decorate the show windows well; improve your parks, boulevards, lawns, etc., and see that there are no unsightly vacant lots or bill boards.

At the Canadian National Exhibition, three of our Societies, St. Thomas, Hamilton and Weston, put on splendid displays, which were much admired, a credit to the Societies, a big advertisement to this Association and also to the Province.

Efforts are being made to increase the exhibit another year, and I am pleased to be able to tell you that the management of the exhibition were very much impressed with the display made and are willing to assist in putting in a larger exhibit next year.

A circular letter will be sent out, from a committee appointed by the Board of Directors of this Association, to the Secretary of each Society, which we trust will be carefully brought to the attention of the several Boards of Directors and that much good will be the result.

I wish to heartily congratulate the Department of Highways of the Ontario Government for appointing Mr. H. J. Moore, a most capable man, to have the care of the beautification of the roadways. I am sure that every branch society in the Province will do their utmost to assist Mr. Moore in any way they can.

I desire to say a word in appreciation of our Secretary and Editor, Mr. J. Lockie Wilson. He is a tower of strength to us, true and faithful in the best interests of the Association.

May we all work together in the forward movement of the magnificent work that we have the opportunity of doing and beautify the home life of our citizens, in cities, towns, villages and country, and place the fair Province of Ontario to the forefront in this Dominion, the best under the British flag.

H. A. Middleton: I notice that a year ago our membership was 17,000 and our Government grant was $17,000, while last year the membership reached 29,000 and our grant was only $20,000. While we rejoice in the larger figures, we notice we are advancing faster in membership than the Government grant, and our progress may be checked. The corner-stone of our success is the Government assistance we receive, so well handled for us by our able superintendent.

Our President was the means, while he was President for three years of the Lindsay Horticultural Society, of bringing Lindsay to the forefront in horticulture. We are getting good substantial grants from the town, county and township councils. Both the C.P.R. and G.T.R. railways are spending hundreds of dollars to beautify their grounds in our town.

COMMITTEES.

The following were appointed on the Resolutions Committee: Rev. W. M. McKay, Weston, Convenor; Chas. Wilson, Fort William; J. P. Jaffray, Galt; Rev. R. D. Hamilton, St. Catharines; A. M. Bryson, Otterville; J. M. Thompson, Hastings; Dr. Bothwell, Stratford; T. L. Moffatt, Weston, and W. J. Evans, Toronto.

Committee on Bulb Disease: Wm. Hartry, Convenor; Dr. Bennett; W. E. Sanders and Prof. Hutt.

REPORT OF THE SUPERINTENDENT.

I am pleased to report that during 1920 our Societies have made the greatest progress in their history. It is true that our institution is a youthful one and has been in existence considerably less than two decades, but the spirit that has characterized your efforts has been flashed from city to hamlet and from hamlet to rural municipality, and the end is not yet, notwithstanding the fact that some twenty new Societies have been added during the year past and the paid membership now enrolled is nearly 29,000. Already we have a number of applications for new Societies which expect to get organized next April. I doubt if there is an Association doing similar work on the continent of America that can show such magnificent progress, and what finer work for the uplift of humanity could citizens be engaged in than in the making of beauteous homes in urban and country sides?

Miss M. Yates, President.

The opportunities offered the officers and members of this Association are great indeed, and you have not betrayed the trust committed to your keeping. In my report for 1917, I made the following statement: "With enlarged vision of the thousands of amateur gardeners, and their newborn zeal and enthusiasm the goal in the near future which we should aim at is an active, energetic membership of not less than 25,000. Our present enrolment is now 17,000."

You have more than verified my expectations, as in the last three years there has been an increase of nearly 12,000 members or about 65 per cent. Will you enroll a membership of 50,000 to be announced at our Convention in 1925 and will you always bear in mind that a steady upward climb is better than a rush forward and then a slipping back. I trust that there will be no backward slides in your great organization. Our banner Province is justly proud of the work you are doing.

In 1919 your Societies expended for purely horticultural purposes over $70,000, every cent of which was laid out in strict accordance with the provisions of the Act respecting Horticultural Societies. The Government grant for the work of that year was $20,000. In other words, for every dollar you received in Government grants, you contributed over two dollars and a half. This is a record to be proud of. No other Society in Ontario receiving Government assistance can make such a showing, with the exception of Agricultural Societies. In my report for 1912, I made the following statement: "For every dollar put up by your Societies the Government puts up another, making $2 to be expended by your Societies on their work." Mark well the advancement made; as stated above, you are now putting up two dollars and fifty cents, instead of one dollar as in 1912, for every dollar contributed by the Government. Was Governmental assistance ever given that produced more satisfactory results to all concerned?

For the first time in our history special prizes were offered by the Directors of the Canadian National Exhibition for a competition in cut flowers confined to our Societies. It was late in the season before I got a definite reply from the management of the Canadian National, and, as the space was limited, Hamilton and Weston were the only two Societies which entered for the prizes offered. These Societies made a very creditable display which was greatly admired by the many thousands who passed through the Government Building. In this contest Weston was awarded first and Hamilton second. Besides the above, St. Thomas Society put up an excellent display of gladioli, dahlias and asters for which they were awarded a special prize. Mr. Gilchrist showed a large number of his special varieties of gladioli which were admired by all lovers of this beautiful flower. These two last named exhibits were, of course, not in the regular competition. I trust that the delegates here assembled will discuss the question of exhibits at the Canadian National and will arrange a definite plan for this year's exhibition, if you decide to go into it. It will be necessary to have the matter settled at this Convention so that arrangements can be made. It has been suggested that a certain number of feet space be allotted to each Society entering and the prizes be offered for the finest display of cut flowers, without naming varieties, and that the exhibit be continued for one week only instead of two as last year. It might be arranged to have the flowers the first week and they to be replaced by the Field Crop Competition display of the Ontario Vegetable Growers the second week. It might be advisable for the delegates to appoint a committee to approach the management of the Canadian National to see what arrangements can be made for suitable space and prizes.

Since our last Convention there has crossed the Great Divide one of our outstanding officials in the person of the late Wm. Hunt. Those who attended our meetings in past years learned to hold in high esteem one who had for many years the charge of the Floral Department at Guelph College. An unassuming man was he whom we knew as a friend and a splendid instructor in the work he so dearly loved. He will, indeed, be missed from our gatherings in the incoming years.

The Convention will be pleased to know that the Department of Highways has secured as Highway Forester, Mr. H. J. Moore, who has done so much to make Queen Victoria Park a thing of beauty and a joy forever to those who visit it. As Mr. Moore's duties will take him from time to time to different parts of the Province, I have the permission of the Deputy Minister of Highways, Mr. McLean, to utilize Mr. Moore's services in giving advice and delivering addresses to Horticultural Societies in places where his duties require him to be from time to time.

As we all know, Mr. Moore is an enthusiast and one whose opinion on different lines of work of Horticultural Societies is invaluable. Societies that would like to have Mr. Moore address them might keep in touch with me and I will endeavour to arrange, where possible, dates for meetings. You will be able to judge for yourselves after hearing his address and seeing his slides at this Convention what value he will be to you, and there will be no charge to Societies for his services.

The thanks of this Convention are due to Prof. Thomson and the staff of the University of Toronto for providing us with these splendid quarters and linking us up with Canada's greatest educational institution. The opportunity of holding our banquet in Hart House is also due to the efforts of the Professor and his friends. They have our hearty co-operation in their efforts to secure for Ontario a Botanic Garden that will, we are assured, compare favourably with those that have been established and are of such educational value in other countries.

At the last Convention a change was made in the affiliation fee. The clause in the Constitution now reads as follows: "The affiliation fee of this Association shall hereafter be $2 for the first 200 members or less and $1 for each additional 100 or portion thereof up to one thousand members, as shown by the last Departmental Report."

I have received a notice of motion for a change in the Constitution respecting the number of delegates a Society can send to the Convention, limiting them to ten. Of course, we are always pleased to welcome as many to the Convention as possible, but, if this amendment carries, only the ten appointed by the Society can vote on questions brought before the Convention.

Before closing, I wish to congratulate the Board of Directors on the work of this Association during the year just closed. We have had in the past many excellent presiding officers but I am sure you will agree with me that we have had none better than the present incumbent, and to him is largely due the improvement in the covers of our reports and the representations made by him and his colleagues to the Minister of Agriculture for an increased grant to our Societies which amounted to $3,000.

Owing to the great increase in our membership the Department was obliged to have a reprint of 4,000 copies, and even with this increase, we did not have a a sufficient number to go around. I trust that this may be remedied another year.

"Art can be as educational as universities, as nourishing as soup kitchens and as healing as hospitals. If you can get people to love and understand what is beautiful and inspiring, and despise what is vulgar, cheap and degrading, you will have done much to cure the body politic of what ails it.

There is a connection between dirty backyards and dirty politics, unclean houses and unclean hearts, vulgar looking furniture and functioning brains. A thing does not have to cost a lot to be beautiful; it takes what is scarcer than money and that is taste."

In drawing my already too long address to a close, I wish to thank the officers and members of the Association for the hearty co-operation that has always existed between us. May the ties that bind never break and may we continue working in harmony for the nation's common good.

Rev. W. M. McKay, Weston, endorsed the position taken by the President and Secretary in the matter of requesting larger Government grants so that the Society could be of greater influence and benefit to the public. He then proceeded to say: Never in the history of our universities has there been such willingness on the part of those in charge to relate the university and its work to the actual need of the Province, and I think as Horticulturists—whether graduates or not—we feel that horticulture is by far the best instrument through which the university can do that. A large membership would mean that it would influence the University, and they would see it to be in their interest to use us as an organization to propagate that ideal education that would be a real need and a necessity at the present time.

T. D. Dockray, Toronto: I understand that a Committee is to be appointed to look into the matter of exhibits at the Canadian National and that there is to be in Toronto this coming fall an exhibition which will give space to flowers. Why not broaden out the work of that Committee to take in also the work of the exhibit at the Royal Agricultural Show.

H. A. Middleton: I represent District No. 2, the boundaries of which run from Dan to Beersheba. My inability to cover that area you know. It would take the income of John Rockefeller to cover these Societies. It is easy enough to find fault with the directors for not building up Societies. There are two reasons for this—one is we have not enough funds.

Mr. Brandon, Dresden: It was through Mr. Glassford, of Chatham, that the new Society was formed in the Town of Dresden. We had some difficulty in getting the 55 members to start. The Society is starting off in good form, and one of our members when approached again for membership this year, said: "Of course. I got dahlias as big as saucers last year, and both I and my husband want to join again."

THE ARNOLD ARBORETUM.

Prof. Jno. G. Jack, Bussey Institution, Harvard University.

The Arnold Arboretum may be described as a specialized and limited botanical garden, one devoted to dendrology or the study of trees and other woody plants in all their aspects. It is primarily a museum of living trees and shrubs which are hardy or can be grown in the climate of New England, supplemented by an extensive herbarium of dried specimens of trees and other woody plants from all parts of the globe, whether hardy or not, and a great library of books and illustrations to enable specialists and students to prosecute their studies to the best advantage.

There are numerous botanical gardens of a general nature which include practically all lines of work among plants, including trees, but the Arnold Arboretum is almost unique in being limited to this special line, one which is of vast importance to mankind.

The Arnold Arboretum owes its name and existence to James Arnold, a merchant of New Bedford, Massachusetts, who died in 1868, leaving the sum of $100,000 to be used for the advancement of agriculture or horticulture. One of the trustees of this fund was George B. Emerson, well known as the author of a fine work, originally published by the State on "The Trees and Shrubs of Massachusetts," which first appeared in 1846. It was one of the first important State reports on trees to be published in America. One of Mr. Emerson's associates in the trusteeship of the Arnold fund was also especially interested in trees, of which he had established a small and interesting collection on his own place in the vicinity of Boston. It was therefore very natural that these men should consider a museum of trees as a worthy object of this endowment left by Mr. Arnold.

Measured by the possible income from it the sum left by Mr. Arnold was not large. To carry out any such plan as contemplated by the trustees involved the use of a large area of land which the Arnold bequest could not supply without seriously impairing the possible income from the original endowment.

Some years before the founding of the Arnold bequest there had been given to the care of Harvard University by Benjamin Bussey his homestead and farm in what was then known as West Roxbury, now a part of Boston and about five miles from the State House or the heart of the city. Mr. Bussey had left this property for the establishment of a school of agriculture or horticulture or similar work.

Artistic driveway, with natural trees.

The trustees of the Arnold bequest made arrangements to give over the custody of their trust to Harvard University upon condition that the University devote a portion of the Bussey Institution lands to the establishment of the proposed Arboretum, this being considered an educational feature quite in harmony with the will of Mr. Bussey.

Accordingly in 1872 the University set aside about 125 acres of the Bussey Farm for the purposes of the proposed Arboretum and several years later some ninety acres more of the Bussey lands were allotted by the Harvard authorities for the work of the Arboretum as, with development, it was found that the original area was much too limited. Recently additional acres have been acquired from the

Bussey lands by the Arboretum and these, together with a number of acres bought and added by the City of Boston in rounding out boundaries, now give the Arboretum an acreage of approximately 235 acres. About one-third of this area is naturally not available for experimental plantations.

A unique feature of the Arboretum is in its arrangement with the City of Boston by which it virtually becomes a part of the Boston park system and at the same time maintains its independence as a department of Harvard University and a scientific and educational institution. This was brought about by the formal transfer of the title by the Arboretum to the city and the formal return or leasing of the property to the University for a thousand years, subject to renewal at the discretion of the University. Thus the Arboretum is perpetually freed from the possibility of taxation. The representatives on the part of the City of Boston agreed to construct and maintain the roads and gravel paths and to give the territory police protection. All other control rests with the officers of the Arboretum, who receive their appointment from the University.

The grounds of the Arboretum are open to the public every day in the year including Sundays and holidays from sunrise to sunset.

The formal agreement with the city was only arrived at in 1882, after long and vexatious delays during which the public and City Government were being educated as to the desirability of the proposed arrangement. Plans for roads and paths were made by the late Frederick Law Olmstead, the landscape architect. The work of road building and grading of the ground by the city proceeded slowly and it was not until the spring of 1886 that the first permanent planting out of trees and shrubs in their natural groups could be made. Since that date additional roads have been constructed and plantings have been made or renewed every year. The Arnold Arboretum must, therefore, be looked upon as a young institution and many more years must elapse before the plantations of trees assume anything like mature size or proportions. However, they are already large enough to afford valuable object lessons to students and the average citizen interested in tree life. and the flowering of the shrubs, which is mostly in May and June, attracts thousands of visitors every year. Besides many large groups of shrubs, planted in various parts of the Arboretum, there is a separate collection, botanically arranged, of hardy shrubs planted in parallel rows or beds with grass paths between. Here the student is enabled to make close comparisons of species and their characteristics without loss of time or effort.

The trees and shrubs are provided with labels giving Latin and English names, when such are known, and the native country or origin. A record is kept of all accessions, showing whence obtained and when, so that the age or history of any plant may be readily ascertained.

Besides the general public the Arboretum is visited and used by nurserymen, by students of landscape gardening and of forestry, and by investigators and research students in arboriculture and dendrology. Some of these students have come from China, Japan and even from Australia. In addition to the opportunity of seeing the collections of living plants, these students are attracted by the additional opportunities offered in the library of over 30,000 volumes and pamphlets and by the herbarium of dried specimens amounting to over 150,000 mounted sheets. These are housed in a fireproof or semi-fireproof building containing the administrative offices and workrooms or tables for students or investigators.

As a museum, a demonstration station to show the growth of such trees and shrubs as tests prove to be hardy enough to endure the climate of New England, the Arboretum does not aim to do teaching in classes or give instruction in the ordinary class-room form. But special arrangements are made for special or research students, for students in landscape gardening, etc. A series of popular weekly field meetings or talks is given during about ten weeks in the spring and early summer each year, supplemented by other occasional field meetings. The collections are studied by classes from other departments of the University and other educational institutions.

The educational work of the Arboretum is conducted largely through publications by the Director, Professor C. S. Sargent, and others connected with the institution. Probably Professor Sargent is best known as the author of the "Silva of North America," published in fourteen volumes with descriptions and beautifully drawn and engraved botanical illustrations of every species of tree known in North America up to the date of publication. Numerous other publications have been issued, among them a quarterly journal of a technical character and a small four page "Bulletin of Popular Information" issued at irregular intervals during the spring and early summer and in the autumn when most of the trees and shrubs are in particularly interesting stages of blossom, fruit and foliage.

The getting together and testing of this collection of hardy trees and shrubs has only been accomplished at much expense and by wide exploration in all those parts of the globe known as likely to furnish desirable material. Trees from the southern hemisphere are all failures in our New England climate, so that it is only from the temperate parts of our own country and Europe and Asia that we can expect to obtain plants able to endure and thrive under our rigorous conditions.

Members of the Arboretum staff and regularly engaged collectors have made many expeditions over North America and to China and Japan collecting seeds and plants and herbarium specimens in great variety and number. The results of these explorations have been liberally shared or exchanged with other botanical institutions, such as Kew Gardens in England, and with nurserymen and private individuals who were known to take a special interest in such introductions, or, in some cases, who had contributed from their own collections to enrich the Arboretum or have given financial aid in its undertakings. By these various means and under different propagators the gradual dissemination of introduced species has been brought about, making the introductions available to an ever enlarging number. While ever ready to help the earnest inquirer about plants and to aid in his or her efforts to get them, if possible, the Arboretum cannot and does not undertake to furnish material to the general public. Hundreds of new species and varieties have been or are becoming introduced to gardens and plantations as their merits become known and proved through the efforts of the Arboretum authorities. A great many of the plants and seeds imported have been known to be or have been proved not adapted to our climate and these have been distributed to warmer regions or stations from Florida to California and Oregon.

Sometimes a species of tree or shrub from some particular region proves a failure with us, while, if collected in a different environment, it may make much more satisfactory growth.

In the past the work of the Arboretum has been devoted largely to the assemblying of a large collection as a basis for comparison and further experimentation. In the future it is hoped that much may be done in the way of hybridization and along other important and interesting lines having relation to the life history of plants.

All these activities and plans mean large expenditures of money and it is perfectly natural that the question should be raised as to the source of the resources of the Arboretum for it will be easily seen that the income from the original endowment of one hundred thousand dollars must fall far short of paying expenses.

The expense of one of its collectors in the far eastern countries during a series of years has amounted to almost the original endowment. The Arnold Arboretum is entirely dependent on its own resources. Neither the State, City nor University contribute any money towards maintenance, except the maintenance of roads and police by the city as already mentioned. Through the influence and efforts of the director in raising funds through publicity campaigns, the original endowment has been trebled or quadrupled and for some years past some thousands of dollars have been annually raised by contributions from wealthy friends and patrons, the contributions being mostly in sums of a hundred dollars from each. To ensure an adequate income and be free and independent of the necessity of begging for assistance from private sources the Arboretum should have an endowment of a million dollars or more in order to enable it to effectively carry on its present work and enlarge its field of usefulness.

A BOTANIC GARDEN FOR ONTARIO.

PROF. THOMSON, UNIVERSITY OF TORONTO.

In thinking over what I should say to-day to this gathering of representative horticulturists from the premier province of our Dominion, the refrain of Kipling's verses on "The Glory of the Garden" kept ringing in my ears until I looked up the poem. I found that it struck the keynote of what I wanted to say—not in poetry but in plain prose:

> "Our England is a garden that is full of stately views,
> Of borders, beds and shrubberies and lawns and avenues,
> With statues on the terraces and peacocks strutting by;
> But the Glory of the Garden lies in more than meets the eye."

It is the poetically expressed truth in the last line especially that I wished to make the theme of my address—that "the Glory of the Garden lies in more than meets the eye." Not that I would disparage the influence of beauty and the need of that influence in Canada, but the rather that I would like to show, as Kipling has done, that the work of the garden is the basis of its Glory, or as Kipling puts it:

> "So when your work is finished, you can wash your hands and pray
> For the Glory of the Garden that it may not pass away!
> *And the Glory of the Garden it shall never pass away!*"

What, then, is the work or function of a Botanic Garden? The work of the garden is the study of plants, creations that share with us the "breath of life" and that minister to our needs on every hand, either directly or indirectly providing us with our food and the major part of our clothing and life necessities.

To study plants we need the plants, not in the *dead* but in the living form, and the Botanic Garden is simply the place where these plants are grown. It is like the chemist's storeroom from which he takes the chemicals he needs for his experiments. Fancy how much he would do if he had to send out, to a foreign country perhaps, for the chemical he needs at a critical stage in his experiment.

It is under such a handicap that students of plants work when they have no recourse to adequate sources of living material. Wide-awake governments make provision for such a supply, for example, Great Britain has its Kew, with local gardens co-operating all over its far-flung dependencies and collectors covering the world. Such service is also rendered by the Department of Systematic Plant Introduction of our neighbour to the south. Paris has its "Jardin des Plantes," and numerous local gardens, Berlin its "Botanisches Garten" and many others in its cities and important towns.

Ornamental Blue Spruce.

Perhaps it is pertinent to inquire what Canada's facilities are, but more especially to-day, what this vaunted premier Province of Ontario can boast of in this connection. Sometimes "silence is golden," but gold will not be the result if through our silence we allow the present conditions to continue. We all fully realize that Canada is an agricultural country. We have heard this statement so often from the stump orator that even horticulturists are liable to forget that agriculture had its origin in horticulture, and may even find its final resting place there if the condition in certain densely populated areas of the older lands is a truthful indication. The study of the principles then upon which agriculture and horticulture both depend should be encouraged by the provision of proper facilities if Canada is to keep pace with other countries. When it is remembered that the little Monastery garden of Brünn was the birthplace of the laws that underlie not only all plant but all animal improvement to-day, the importance of the garden to agriculture and horticulture can be to some extent realized.

Perhaps I might quote what the Chief Botanist of the United States Bureau of Plant Industry, Mr. Coville, says in urging the provision of adequate Botanic Garden facilities for the United States: "It is my opinion that in the next fifty or hundred years we shall make greater advance in the development of useful plants than has been made in the whole history of the human race up to the present generation. All the conditions are ripe for that development. Science and practice are united in the enterprise."

This is the opinion of a man who cannot be said to be a dreamer, but a thoroughly sane, practical person, since he has made blueberry culture produce $1,000 an acre on the waste, pine-land barrens of New Jersey. Perhaps I should add in this assembly that he did this aided by a lady, Miss White, who carried out the commercial tests on the new hybrids that Mr. Coville produced from crossing the high with the low bush blueberry.

I might quote from another to show how profitable to the State improvement in crop plants really is. Mr. Walter T. Swingle in testifying on behalf of the proposed enlargement of the Federal Garden to 400 acres with 600 acres of park area adjacent, said after describing how Egyptian cotton came to be introduced into certain Western States: "Ten years ago five members of our bureau took up the problem of finding a satisfactory method of growing Egyptian cotton in this country. Up to that time no Egyptian cotton had been grown in this country successfully . . . . Nevertheless, by scientific investigation of cultural methods, and by the breeding of better types of Egyptian cotton, and by the close organization of the farmers this industry has grown from nothing ten years ago until in 1919 the cotton crop from the Salt River Valley of Arizona was worth over $20,000,000. This is almost entirely new wealth; it is not merely the substitution of other crops by cotton, but immense new areas—in one case 10,000 acres in one field—were reclaimed from the desert, irrigated, and planted to Egyptian cotton." He goes on further: "I have made a calculation which shows that the income tax returned to the Federal Government from the Egyptian cotton industry in Arizona and California is about twenty times what this investigation cost, to say nothing about the benefits to the States and counties and individuals themselves." Mr. Swingle also cites the case of the navel orange, which was brought from Bahia, Brazil, in 1871: "It was then merely a curiosity, and a few plants were brought back by Mr. Saunders, which resulted in the establishment of an industry in which there are now nearly $200,000,000 invested; it is one of the most scientific and highly organized horticultural industries. The income from that investment is simply prodigious."

The proposal that the University makes with regard to "A Botanic Garden for Ontario" is one entailing co-operation between the City, the Provincial Government and the University. By this co-operation a garden second to none on the continent can be secured with a minimum of expense to each party. The plan involves a commission representative of the different interests, for the control of the garden. The city is looked to for the site, the Government and interested private persons and institutions for the upkeep, and the University has agreed to assist financially by paying the staff. The advantage to the city is that she will get a splendid park for her citizens, old and young, for all time without further expense for upkeep—an unique park too in that it combines education and pleasure. Such an institution would certainly attract many visitors to the city. The Government in being called upon to provide for the upkeep only will be saved the original heavy expense for a site and will be enabled to do more with its money to furnish the means for investigation and experiment that will be of inestimable value to the advancement of the science of horticulture. Again, co-operation with the city will do much to cement the relationship between urban and rural interests, in fact the garden will provide a basis not only for mutual interest and understanding but will act as a strong factor in the preparation of urban dwellers for resuming life in the country. On the youth of the city this effect will be especially marked, and is certainly very much needed if the concentration of a city-bred population is to be prevented. Too much emphasis cannot well be placed on this side of the garden's influence.

By making the appointments to the directorate on the recommendation of the University, vised of course by the Commission, much of the danger of "political appointment" is obviated. The connection of the University with the practical affairs of horticulture will also react on the teaching of the University itself to the good of the whole community. The teachers and others trained in the University will act as a leaven throughout the whole province. The advantages of the cooperative plan are so apparent that its consummation can result only in satisfaction.

REPORT OF COMMITTEE APPOINTED TO REPRESENT THE ONTARIO HORTICULTURAL ASSOCIATION REGARDING THE PROPOSED BOTANIC GARDEN FOR ONTARIO.

Miss Mary Yates, Port Credit, Ont.

Committee: Miss Mary Yates, Port Credit, Convener: Rev. W. M. McKay, Weston; Rev. A. H. Scott, Perth; Dr. F. E. Bennett, St. Thomas; Mr. W. B. Burgoyne, St. Catharines.

At the 1920 Convention the committee appointed to report upon experimental work in horticulture, recommended the formation of a standing committee on education, to represent the Ontario Horticultural Association in the work regarding the proposed Botanic Garden for Ontario, after which a resolution was moved by Mr. J. M. Pearen and seconded by Mr. W. E. Saunders and carried by the Convention, as follows:

> "That whereas a well developed horticulture is recognized as essential to the welfare and prosperity of Canadian home life, and whereas horticulture is a definite craft in itself, and is not a branch or department of agriculture, and consists of the more intensive cultivation of fruits, flowers, vegetables and ornamental plants, and whereas there is a great shortage in Canada of trained horticulturists, and whereas scientific research in plant physiology, plant pathology and entomology is of vital importance to the future development of horticulture in Canada, and whereas systematic plant improvement and plant introduction are likewise of fundamental importance to the future of Canadian Horticulture; therefore be it resolved that this committee recommends the establishment of special facilities for the practical and scientific training of men in horticulture, and further recommends that all horticultural and kindred organizations in Canada be requested to appoint representatives to a Canadian Council of Horticulture with a view of formulating plans for the adequate development of horticultural interests in Canada as outlined herein."

In order to give effect to this resolution, the above committee was appointed by the Board of Directors on November 10th, 1920. This committee was given power to represent the Ontario Horticultural Association in the work regarding the proposed Botanic Garden for Ontario, and requested to report to the 1921 Convention on the progress made during the year.

Leading events of the year bearing upon the work have been:

1. A joint conference of Botanic Garden Interests was held on February 28, 1920. There were present a number of influential persons, and the Convener of this Committee was invited to address the gathering on behalf of this Association upon the opportunities such a garden would present for the training of professional gardeners.

2. An educational meeting was held by a joint committee formed from the three Toronto Horticultural Societies, acting in conjunction with the Central Botanic Garden Committee. A very fine illustrated address was given by Prof. Farquhar, of the Arnold Arboretum, who emphasized the fact that the Toronto neighbourhood possessed unrivalled advantages for a site. He considered the opportunity for beautiful planting unequalled on the continent.

3. The press deserves our hearty appreciation for their educational notices throughout the year. Space has been generously given for leading articles upon the history of such movements in other countries, and for letters which have been written by members of Horticultural Societies upon the subject.

4. Much prominence has been given the subject in other kindred organizations. Discussions have been taken up in the Ontario Rose Society, the Canadian Florists and Gardeners Association, and in groups formed by students of horticulture.

5. During the year the members of this committee have done all in their power to bring the question of further education in horticulture before the Societies they have come in contact with, and the subject has been featured in the programmes of St. Thomas, Port Credit, Toronto, Weston, St. Catharines and Perth. They have replied to questions from numbers of private members, regarding the necessity for progressive educational work in horticulture in Canada.

To illustrate the need for facilities in training, attention is drawn to the *Globe* of February 4th, 1920, in which a statement is made with regard to the increased value of the landscape plans for the planting of school, home or community grounds, which Prof. A. H. Tomlinson, B.S.A., has undertaken to prepare since the appointment to his staff of a graduate from S. Kensington, London. This indicates an opportunity in Ontario for students from high grade educational institutions.

RECOMMENDATIONS FROM THE COMMITTEE: It will be recalled that the resolution of Messrs. Pearen and Saunders urges co-operation with all horticultural and kindred organizations on the part of the Ontario Horticultural Association. This committee begs to recommend:

1. That the following nationally and provincially organized groups be invited to co-operate with the Ontario Horticultural Association in the educational work contemplated, by sending accredited delegates to the 1922 Convention:

1. Canadian Florists and Gardeners Association.
2. Ontario Rose Society.
3. Ontario Paeony Society.
4. Horticultural Branch of the Ontario Agricultural College Alumni.

The object in view being the formation of a species of Provincial clearing house for horticultural education, that may be prepared to represent Ontario upon the Canadian Council of Horticulture, that the movers of the resolution had in mind, as an ideal towards which to work.

2. That the Committee be given authority to try to secure the assistance of the Extension Department of the Provincial University in providing some speakers on educational subjects for the branch platform.

If a suitable list is prepared, the Director of Extension Work intimates his willingness to assist the Association by this means.

HOW TO CREATE ENTHUSIASM AND LOYAL SUPPORT TO THE ANNUAL FLOWER SHOW.

C. W. Wilson, Fort William.

It may seem presumptuous on my part to speak before this Convention on the subject chosen, inasmuch as this is the first time I have attended a Convention of the Ontario Horticultural Association, of which the major portion of you, I presume, are older in years of experience both in horticulture and the matter of arranging for the annual flower show of your respective Societies. Being a publicity man, as a means of self-support, and a horticulturist for pleasure and pastime, I hope to be excused if I treat my subject strictly from a publicity man's standpoint; therefore, if any of the ingredients used in my recipe for creating enthusiasm and loyalty for the annual flower show have not been used by even a few of you, and you think that wrinkle might be turned to good advantage in your own Society then I will feel that I have at least done something to repay you for the privilege and honour of having shared in the treat of good things this Convention affords, even though I have travelled a thousand miles and more to take part in them.

To create enthusiasm and loyal support to the annual flower show, the president should be the human dynamo around which the Secretary, the directors and every active, enthusiastic member should radiate. Too often this work is left to the secretary who is, or should be, too busy looking after the internal business of the Society to have his attention directed or energies spent on external affairs connected with the annual show.

Presidents of our Societies, I am afraid, fail sometimes to realize that their office carries with it the responsibility of taking the lead, particularly that pertaining to the propaganda and direction of all work connected with the staging of our annual flower show, which is usually the climax of the season's endeavour.

This is just a preliminary observation, as I wish first to place the responsibility upon the success, the enthusiasm, and the loyal support to the annual flower show, as it relates to the community at large and non-members in particular, upon the president, as they can always be depended upon to give of their best through the love of the work.

It is not my intention, nor do I feel capable to prescribe a recipe which will insure the success we all would like to have, but, instead, I will attempt to describe the plan we worked out and carried to a successful conclusion in Fort William last year.

When I assumed the presidency of our Society last year it had a membership of 235. Heretofore the Society had always held its annual flower show in an empty store or basement of the Public Library, no admission fee had ever been charged, therefore there were no receipts, few people had ever attended and little interest was taken in it outside of the members.

As the success of every worthy cause depends upon the sort of publicity it receives I decided, early in the year, that our Society should be kept pretty well in the limelight. I first made arrangements with the publishers of the leading daily newspaper, whereby one full column of space would be allotted to the Society each Saturday for propaganda. I believe there is not a class of men in any community who are greater enthusiasts for our cause than newspaper publishers, or better able to realize your importance to the community.

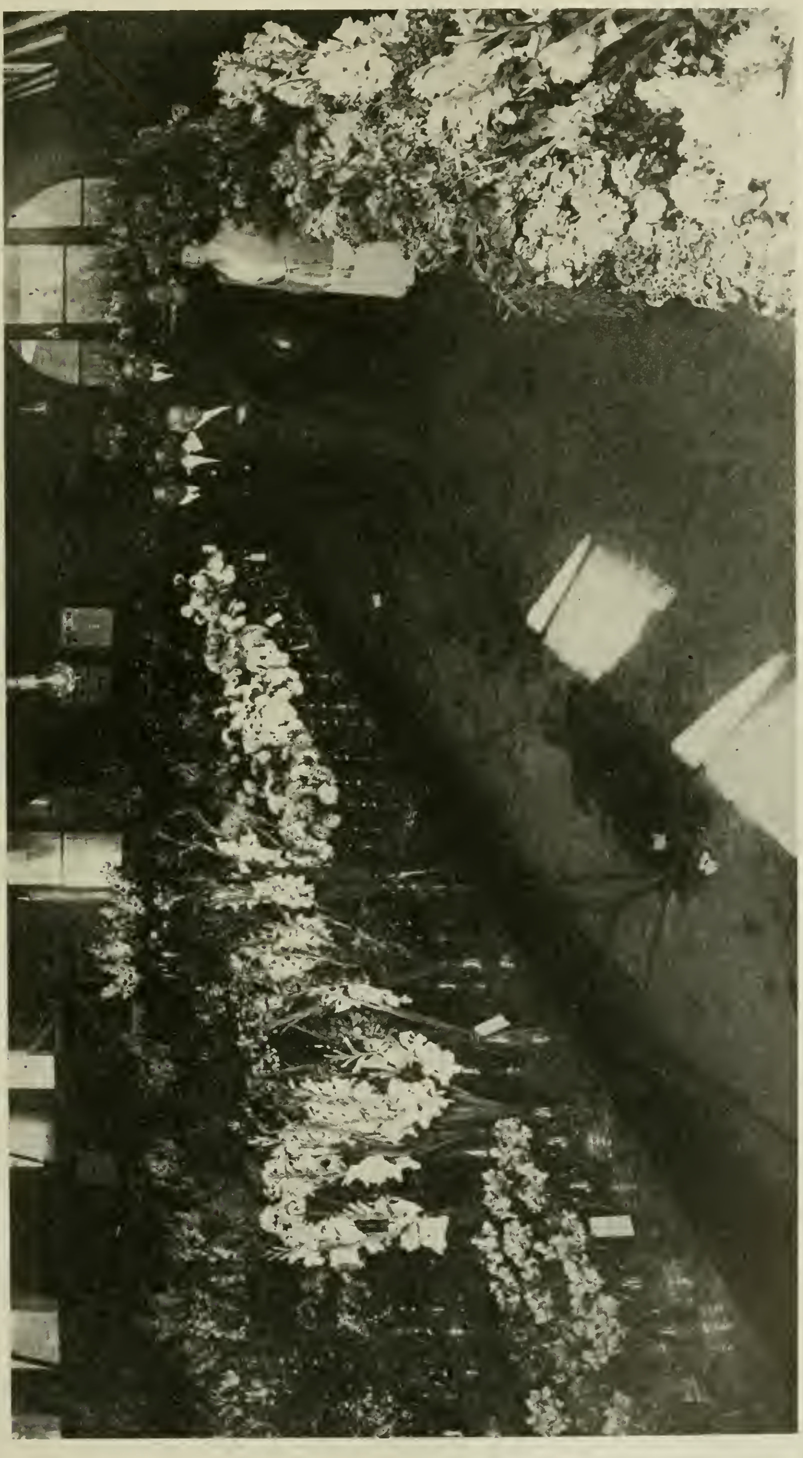
Early in February we got the premium and fall prize list committee together, and for the first time in the history of the Fort William Horticultural Society, decided to issue the fall prize list, along with the premium list and membership tickets, early in March, which is a time, as you all know, when all gardeners are in a sort of a brain storm on the subject of gardening. The prize list carried a slogan, "Grow for the fall flower show." We figured this was the psychological time to gain the utmost enthusiasm of the horticulturist who would cultivate with some definite object in view, and to enlist new members. As the result of that particular feature of our campaign, from 235 members the previous year our membership on the 1st of June increased to 1,095.

Early in July, six weeks prior to the show, I called a general meeting, solely for the purpose of arranging for the show. This notice we published in every newspaper. Despite strong opposition we decided to hold it in our new Skating Rink, a new $75,000 structure with a polished cement floor, space 200 feet by 90 feet, and a seating capacity of over 5,000, at an expense of $100 a night.

A special flower show committee was appointed with a chairman, and sub-committees called "Exhibits," "Decoration," "Prize," "Entertainment" and "Publicity" were formed, with the secretary to have charge of entries, finance and business management in general. It was decided to hold the show two evenings and one afternoon, the first day to be taken up with entries and judging. We decided to divide our floor space in two and to hold a dance in one half and the flower show in the other half. We could arrange for the dance because the rink has a polished cement floor. It was decided to have a band in attendance each evening and an orchestra from nine to twelve, to surround the whole rink with evergreen trees, flags and bunting, and to charge twenty-five cents to attend the show and fifty cents for the dance and show combined, all members to be admitted free upon presentation of their membership card.

All our committees did their work as well as was expected of them (usually all people like to work when they have some responsibility thrust upon them). The Exhibits Committee secured an individual exhibit from the City Parks Board of over 1,000 plants, the Local Government Board sent down a splendid exhibit, three professional florists were invited to exhibit for professional purposes, and this Exhibits Committee took absolute charge of the arrangement of the exhibits of individual members. The Prize Committee went out and solicited five silver cups and a cut glass vase from prominent business and professional men, to be awarded as special prizes. The Entertainment Committee secured the band and orchestra, and in addition arranged with the Great War Veterans to place an up-to-date modern tea-room and ice cream parlor in the centre of the whole layout.

As regards the Publicity Committee, of which I was chairman, I think that the same plan that I am outlining to you here as regards publicity would work out the same for your Provincial Botanical Gardens and for your exhibit at the Canadian National Exhibition. The first thing done was to have seventy-five large window cards. beautifully illustrated and printed in two colours, placed in all the principal stores and banks of the city. By special arrangement, twenty of our



Hamilton Horticultural Society's Exhibition. The enthusiastic secretary, Mrs. Potts, standing on the right.

members volunteered to keep a vase of freshly cut flowers beside these window cards. This proved to be a winner. I personally wrote to and visited every Society and organization in the city asking for their support and co-operation. The Imperial Press Conference was held in Canada last year. I wonder how many Societies took advantage of their presence to advertise our country. The Conference came over the Great Lakes. There was a half-holiday called in the cities of Fort William and Port Arthur, thousands of people were on the wharf to greet the delegates, and one of the newspapers got out a big 48-page special edition. Two big banquets were held. I went to the committees in charge of the banquets and told them that the Fort William Horticultural Society would like to have the honour and pleasure of decorating the tables at those banquets, provided they were given the right to place at the foot of each vase a card reading "Grown by the Members of the Fort William Horticultural Society." They did not refuse it—in fact they had had it partially arranged to have the decoration done by a professional at a cost of $500. But we beat any professional exhibit. We had the whole-hearted co-operation of every member; they were proud to take part. The two special trains of those delegates standing in the yards to take them west were also supplied with sweet peas with cards attached. We knew that was good advertising for our Society, because it would give us the moral support of the very best people in the city, we made the public our debtors and that is where you always should have them.

In every city and town there are several women prominent in social and public life and as a rule, these women are very public spirited. I made a select list of thirty, from Port Arthur and Fort William, and visited every one personally and asked them if they would act as a patroness of our Flower Show, each lady being presented with a very pretty badge to wear at the show and to designate her official connection. This was a great hit, because you know what happens when the women begin to talk. Besides, you place your show upon the highest possible level as a social event of importance, and at the same time place a mighty weapon in the hands of your advertising or publicity man. I wrote the Hon. Manning Doherty, and he came and opened our Flower Show. He stated it was the best exhibit, both from an æsthetic and utilitarian standpoint that he had ever seen.

The school children, of whom we have over five thousand in Fort William, were invited to be our guests on the afternoon of the second day. Through the co-operation of the school teachers, this message was sent out to them and that was a good advertisement for us in the homes of the city.

All these things had cost a lot of money and some of our members were fearful of the results, but I kept right on spending and whooping it up. Five days previous to the opening of the show I prepared a half page advertisement for the papers, following this up with similar space each day. These were real ads.. and had lots of pep and punch to them because of the material I had to work with. I featured the Minister of Agriculture, the Mayor, the President of the Board of Trade and the thirty prominent ladies as patronesses, the Parks Board exhibit of nearly one thousand individual exhibits, the experimental exhibit, which was a beauty, the professional exhibits and the large display of members' exhibits, the band, the orchestra and the dancing, the scores of evergreen trees, the illumination of the building including eighty Chinese lanterns, and the spacious tea rooms of the War Veterans. I made the picture a most pretentious one, and I knew from experience, before the show opened, that I had moved the city. All that was left was to make the show measure up to the picture and the claim of the publicity, and you can rest assured that when these committees read this publicity and came face to face with their names appearing in each ad. as directors, etc., they lost no time nor spared any energy in having their share of the work completed.

Some may think that was lavish expenditure, but I am going to quote to you the actual figures of the results of this Flower Show, and which can be carried out less or more, according to the size of the city, etc., and we have 20,000 people in Fort William. When our show opened the first night a thousand people were clamouring to get in, and on the two nights over one thousand seven hundred people paid admission, and this besides our thousand odd members who got in free. Our total receipts were $586.55, our gross profit $357.87, and our net profit $178.87, while our exhibits were nearly double that of other years.

Mrs. R. B. Potts: I can agree with the speaker in one thing, and that is that like draws like, but I am afraid that all Societies cannot be put in the same class and that not any two places can be run in the same way; environment has very much to do with it. I remember reading a good many years ago the statement of a party who had been most successful in persuading people to exhibit and also in arranging exhibits, that there were three things essential for success, not only for the grower but also for those preparing for the show, that is patience, perseverance and perspiration. Now, I have great faith in the latter, that there must be good hard individual work, but I do not think it should fall on two officers, the president and the secretary.

The question in my mind has been that we can do no work of any description unless we have a very clearly defined plan in our minds, and when I hear Societies claiming that they cannot make a success of their horticultural exhibition, I would like to know what their standard of success is. What is their object, what is their aim in holding their show? And before you organize for work of that kind, you must have your goal in view. I much prefer to see how far I can reach out, and to touch people who have never been interested before. We could do a great deal more in Canadianizing our foreign population than we do, for flowers speak a language everyone can understand.

The Horticultural Societies have much educational work to do, and therefore the more we can reach out the better it will be. I believe it is wise to have something of secondary interest, but we do not provide a dance. We get in touch with some of the local charities—they all need help—and we arrange that they shall sell the refreshments, if there are any, and we give them the flowers to sell.

We do not charge any admission fee, but have a silver collection. We do this in order to meet the expenses. We do not go in as a money-making or commercialized society at all. Our first aim and object is the educational side.

We get in touch with the farmers who sometimes come into our show to buy flowers for the cemetery. I have watched a number of people who have exhibited for the first time. We have in the audience to-day one of our greatest helpers and her work is largely taking the people who are timid and who bring their flowers in and think they are hardly good enough to show, but they want to help a little. This lady who is intensely interested in the work, takes these people in, and she helps them stage and classify their flowers and put them in their proper places, and the next time they do not need the same lesson. Those who have come in for the first time voluntarily, generally become members of the Society. I have been going over the records, and I have yet to find where anyone has come in without bringing in three or four other members—and I would rather have a voluntary member any time than one pressed or bribed to come in, and they are less trouble to us when it comes to a premium distribution. I prefer, therefore, to start on a very solid basis, small if need be, and work up in a quiet, healthy way.

We have not an over-supply of active workers. They are coming in and it is a pleasure to see that. I would rather have slow work than have it come with a thud and then break apart. I would rather have one bee that goes out and gathers the honey than a whole swarm of drones. And it is not done by standing still and just criticizing others. While I can agree with having some salient issue, I would rather take some charity, some patriotic work, and in that way broaden the thoughts of the people.

Do you put your stress on your money prizes? Are you educating the people to that mainly? I know you cannot get the commercial men to come in unless you put up big cash prizes. But are you looking after the commercial side entirely? I do not. They can look after themselves pretty well. I think we should go out and interest people for the sake of the country, go out and interest those who have not yet been interested, and bring them into the fold. That is my last and only thought before we start any of the shows. I am glad that in Hamilton our first object is to help these elements most needful of help for the sake of the country, and then to help the poor and unfortunate, and to allow our work to grow steadily, so that while, no doubt, Fort William can put up a splendid exhibition, I would not exchange the one we have in the Butter Market Building in Hamilton, because I know of the good work we are doing, and it is good solid work and the people come in, and ask us: how do you do that? How do you grow that?

There is another thing: you need someone there who can answer questions. You want a committee to help the timid ones to stage their pots and plants, and then another committee to educate and answer questions. I am confident that success will then crown your efforts, particularly if you remember the three P's—patience, perseverance and perspiration.

GLADIOLI.

MRS. A. H. AUSTIN, RAVENNA, OHIO.

I will not attempt to give a history of the gladiolus save to mention that we understand that the species have been found in Asia, Europe and Africa, and according to certain records, the flower was grown and catalogued in America a hundred years ago. But it was not until within the last thirty or thirty-five years that flower lovers in America became awakened to its beauty and usefulness, sufficiently to take up its culture, to any extent, for commercial purposes. It had attracted my attention and I was growing them for pleasure at that time.

It is now grown so extensively that it would seem almost unnecessary to speak of its culture, but seldom does a week pass by without letters asking information. It may also interest you to hear a little of my pioneering experience when florists were not using gladioli, trade papers were in their infancy, and I believe the florist commission house was unknown.

I think there were less than a hundred bulbs in my first real collection. They were carefully planted in our garden, gave good ordinary blooms and a few of the small black cormels.

Those little black bulblets were of much interest to me and fearing that Jack Frost might get them, even in the cellar, I stored them in a paper bag behind the mirror in our warm sitting room where they dried all winter. Their failure to grow the next season was a surprise and the determination to know why led to special study of their nature. I very soon learned that when stored properly, they would grow well in any good garden soil with suitable cultivation and a sunny situation.

Gladioli.

Foxgloves.

In my love for the bloom I cut the spikes, and as there were no floral fashions in regard to the length of the spike, I cut them rather short, thus giving full strength to the growth of the bulbs and their increase.

The occasional one left uncut formed seed and the small size of the bulb as compared with the others was noted.

Truly observation and experience are great teachers.

The bulbs increased rapidly and almost before I knew it I had what at that time seemed a large collection. To throw them away would be sacrilege, and, as I was sure some one wanted them, I induced boys to try selling them, but people preferred other flowers and they met with failure.

Those boys have a warm place in my heart, and a few years ago one of them, a prosperous business man of Cleveland, called and expressed his pleasure and congratulation on the success we have achieved in our gladiolus growing.

I sold some bulbs yearly at local chrysanthemum shows, and, constantly seeking a market, fortunately learned of a Florists' Trade Paper, and through its columns made successful sales.

I retained a quantity of the small planting stock which I grew and induced my neighbour to help dig and root the bulbs, and she helped me in the harvesting for seventeen successive years.

The way we grew and harvested them at that time is rather amusing compared with our present methods. The weeding by hand was hard work and more time and labour was spent on caring for a few rows in the garden than we put on an acre now.

After digging them with a fork we would spread them on blankets or canvas in a sunny spot where they would cure quickly, and then removed them to a convenient working place. Sometimes it was the orchard shade, not far from the melon patch in case we might get thirsty, and with the birds singing an accompaniment, we tied rags around our fingers to prevent them getting sore, and sitting on the ground pulled the roots from the bulbs. If one of us stopped working and crooked a finger in weird and questionable fashion, it was not an invocation to unseen spirits or to the adorable Flora; it only meant that the string was too tight.

Then on those cold October days, the foretaste of winter chill, we sat in the tool house or granary and did this work. Pleasant times all, and I learned the old lesson that determination and stick-to-it-iveness will conquer almost anything. After the bulbs were cleaned came the sorting, and here the yardstick came into use. Selecting good plump bulbs for patterns I set them on the yardstick, grading according to diameter, always allowing the sizes to run large.

Those that were 1½ inch and over in diameter were kept separate and those that were 1 to 1½ inch also, thus making two selling sizes.

The smaller ones I kept to plant, though I often sold nearly all in a job lot as I feared an over-supply. but each selling season brought more and larger orders than I could fill. I grew less afraid of an unsaleable surplus, which, by the way, has not yet arrived, and the business of growing gladioli for commercial purposes was established at Elm Hill Farm.

Many were the smiles and remarks on posey-growing by substantial farmers who were not a little disgusted with my husband for humouring such nonsense, but he had become interested, and together we increased our stock from a few thousands to as many acres as we cared to grow.

Gladioli will grow in any good rich soil in a sunny situation. We try to have a good clover sod to plough under in the fall. work in a heavy coating of manure and sow to rye which is turned under in the spring.

The ground is thoroughly worked, limed if we think necessary. and marked out in rows. We plant single rows thirty inches apart to admit of horse cultivation. but of course they can be grown much closer if space is limited.

The larger bulbs are planted in drills about four to six inches deep, and a good rule is to allow a space between of twice the diameter of the bulb planted. Bulblets should be sown thickly. they will come up better and be more free from weeds.

After the bulbs or bulblets are in the rows we ridge them up like potato planting, and in a short time go over the field with a horse weeder levelling the weeds just starting into growth.

In a few days we ridge them up with the cultivator which again destroys the weeds. We continue this alternate ridging and levelling with the cultivator and weeder until the growth is from six to eight inches high when we discontinue the use of the weeder but keep the cultivator going. This is specially important, not only to keep the weeds down but to keep a dust blanket to prevent evaporation of moisture.

Cultivate well between and up to the rows of bulblets, then with an ordinary garden rake, carefully rake crosswise of the rows. This will remove the soil that may be ridged too high by the cultivator, will kill the small early weeds, and leave the green blades standing upright and free.

Gladioli grow better and bloom better under moist conditions, and it is essential that the crop be well cultivated as soon as it is possible to work the ground after rain. Irrigation is almost invaluable in a dry season.

When the buds from the large bulbs are showing colour and the first one is about to open, we cut the spike, being careful to cut as little of the foliage as possible. Four leaves of foliage should be left to mature the bulb. The spikes are placed on a rack or work-table, tied in bunches of twenty-seven, placed in water a few hours, after which they are wrapped in paper and packed closely in shipping packages. For this purpose we use orange boxes, lined with papers, first extending the height of the box according to the length of the spike.

The spikes from small bulbs are clipped out before blooming so as to allow full strength to the growth of the bulb and the small bulblets which form at the base of the bulb and by which the stock is increased.

In growing, the bulb we plant dies away and a new one forms on top but does not increase fast in size until the blooming is over, then, where the spikes have been topped, they grow rapidly and in only a few days under good conditions, a bulb may change from a No. 3 to a No. 1 size, thus adding several dollars to the price, as bulbs are sold according to their size and numbers.

In harvesting the crop, I wish to emphasize the importance of digging the bulblets early, in fact, while they are still green enough so that the tops will not break off easily. When loosened from the soil, which should be done with a tool that will cut under and raise them up without turning them over, they can be lifted out by the tops, but if allowed to remain in the ground until they become ripe, the tops will break off and it will be necessary to pick the small bulbs out of the ground, which is a very tedious job.

On the other hand, the large bulbs should be left in the ground as long as they are making growth and without danger of freezing. These are quickly harvested. We loosen them the same as the bulblets, then grasping the tops with one hand, with the other we break the bulb free, being careful to not tear the outer covering. They are thrown into baskets which are emptied into waggons and are then taken to the storehouse where they are forked into shallow trays which are stacked one above the other, allowing an inch or two for air space between.

They cure quickly if weather is warm and sunny, but if cold and wet a little fire heat with plenty of circulation will help dry them out.

After they are cured (and one learns from experience when they are about right) they are spread on broad tables made purposely and the old bulb and roots are taken off, sometimes with the bare hand but often with use of huskers.

The tables are very convenient and were planned especially for our work. The size is 6 ft. long, 4 ft. 2 in. wide, 27½ in. high, and are so constructed that they can be folded when not in use. A narrow strip on the sides ⅜ in. above the edge prevents the bulblets from rolling off.

This size table will accommodate six workers.

After the roots are taken off, the bulbs are graded into seven different sizes by using wire sorters made purposely. Those 1½ in. in diameter are called No. 1 size, and 1¼ to 1½ No. 2, 1 to 1¼ No. 3, and so on, the No. 6 being ½ in. and less. Those which are as small as ¼ in. are usually sold as white skinned bulblets.

The cleaned bulbs are stored in trays ready to fill orders. The trays are made of light wood, ⅞ in. stuff, 48 in. long, 18 in. wide, 4 in. deep and have a three-cornered piece of wood tacked on each corner of the bottom for air space when stacked.

The growing of seedlings has been of interest and pleasure to me, and from my observation and some results I believe there is an even greater future for this flower before us.

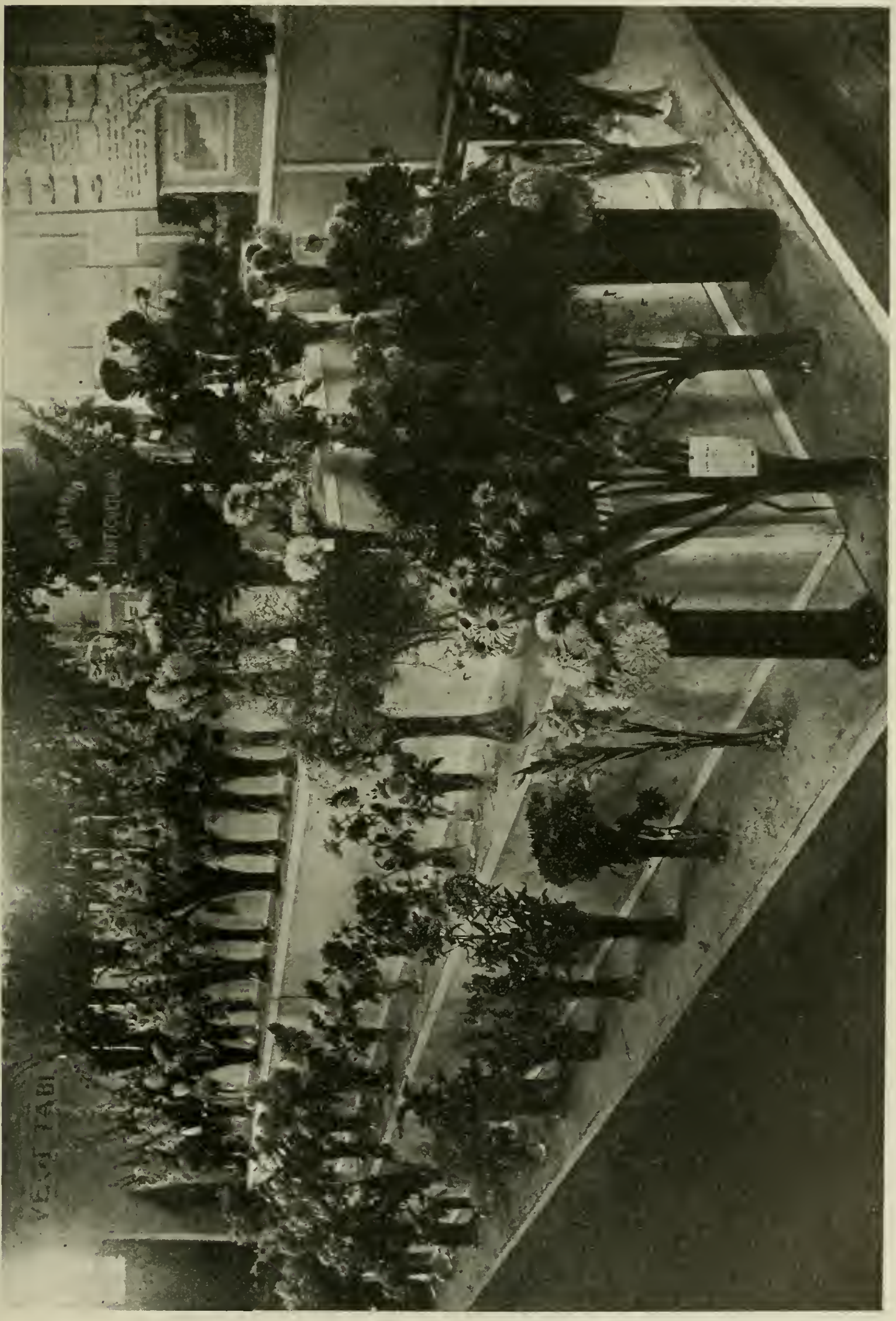
It has already so responded to the efforts of skilled breeders and even to chance and haphazard crossings that we now have varieties of almost every form and imaginable colour, marking, form and size of flower, as well as slender, tall, short and heavy spike, with equally variable form of growth and season of blooming.

One might think we had reached the highest standard and question: How shall we find new ideals? But the practical plant breeder knows that with every worth while production, our standard has advanced, and our ideal, equally progressive, is suggested by the flower itself.

Good varieties will be produced by ordinary crossing, but the grower who understands the gladiolus and something of its capabilities, and selects and crosses varieties possessing tendencies toward a chosen ideal, and continues the selection and crossing in succeeding generations, can be reasonably sure of obtaining something at least approaching his ideal, and an advancement over others in that line.

Last summer a gladiolus bloom was brought me from a bulb that had been left in the ground without extra protection in winter for the past six years. It may not be hardy under all conditions but it possesses a tendency in that direction —an ideal worth working for.

I will mention a few personal instances of how some new ideals have come to my notice. In my early years of growing gladioli, some of my friends questioned my taste asking: "Why the gladioli?" Invariably adding: "It is so lacking in gracefulness," and I came to desire increased gracefulness more than anything else, and began crossing and selecting each year for the betterment of our commercial mixture which we called Elm Hill seedlings. The improvement soon became very noticeable, not only in gracefulness but in size and beauty of bloom, and those of them that were named each possessed some distinctive feature. One day I noticed among my seedlings a new one of large size and good substance, and near it a much taller variety, and, as I looked, an ideal of the large flower on the tall spike came into my mind, and pulling off an anther from the taller one I rubbed the pollen on the large flower. From seed saved from that cross the Evelyn Kirtland with its tall slender spike came into existence. With the graceful spike came the exquisite bloom, both spike and bloom better than either parent. At that time I had never seen or grown any of the ruffled varieties, but the petals of the Evelyn Kirtland are slightly ruffled. Where the trait came from I



First Prize Exhibit, from the Weston Horticultural Society, at the C. N. E.

do not know, but thus the flower suggested a new ideal. In fact, this variety is full of suggestions, and another ideal that it offers is that of the divided spike. The division appears in various forms. Sometimes there are two or three flowers, then the division just above them, and perhaps four flowers abreast. Quite often it is near the top presenting the appearance of a bouquet topping the spike of bloom, again the divisions stand back to back with blooms facing outward.

Still another ideal presented by this variety is that of the double flower, which we find in both the divided and the natural spike. Both of these traits appear yearly but never twice from the same bulb.

Another variety appeared having pale green drooping foliage falling away from the spike which could be cut nearly to the ground. A valuable hint.

For several years I grew a gladiolus whose foliage was nicely marked with white, and while the variegation always appeared on a portion of the bulblet grown stock, it was never twice from the same bulb.

I have had fleeting glimpses of crinkled crepe-like petals, also a hint of iris form with standard and falls. None of the unusual ones have produced seed.

The mechanical process of crossing is very simple. The gladiolus being a flower in which both sexual organs appear, it is necessary to emasculate the one chosen to be the seed bearer by removing the anthers as they contain the pollen. Do this while the flower is still in bud and cover it with a bag to prevent pollination by wind or insects. It is not a bad plan to cover the pollen-bearing flower also to save the pollen. When the stigma of the seed-bearer is ripe it will have a moist appearance and the pollen should be dusted or rubbed on. Cover again with a bag and leave until seed pod begins to grow.

If you wish to add a new pleasure to your life take up the culture of this flower and with it the study of plant breeding.

When in California last winter we felt that our trip would not be complete without a visit to Luther Burbank's establishment, and although it was the dormant season we were privileged to see plants that were of new form and increased size due to the work of this man who has made such a study of plant variation and plant breeding that it seems possible for him to cause any plant to vary in some particular.

He directed our attention to some of his work over which he seemed quite enthusiastic, making the remark that it was wonderful how nature responded to one's efforts, and it was plain to be seen that his pleasure in growing plants is in causing them to vary and thus become of different form.

Perhaps none of us will be so fortunate as to reach his plane, but the field is there, and scientific plant breeding is receiving so much attention at the various agricultural colleges, that I believe the time is not far distant when earnest gardeners, or perhaps I may say the average gardener, will be growing his plants. not only for the beauty of the flower or uses of the vegetable, but for the additional pleasure in the production of a new form of beauty or quality that approaches a particular ideal in some line of efficiency.

I think I may point to our Mr. Kunderd, of whom we are very proud, and his production of the ruffled gladiolus, as an instance of scientific plant breeding toward a definite ideal. And again, to Mr. Diener who claims to have discovered a new law, and whether so or no, has at least produced some very fine varieties through scientific plant breeding.

Looking backward, our Mr. Matthew Crawford stood pre-eminent as one who worked along definite lines.

Also our neighbour, your own Mr. Groff, whose hybrids brought brilliant beauty and increased size to the gladiolus world.

The gladiolus is not a fad, a craze of to-day and gone to-morrow. It is the great flower of progress. Where is there another that has made such advancement as this with its orchid beauty and potato culture?

When I put my first little two or three liner in a trade paper there was only one other little liner, and in last week's paper I counted advertisements representing, with stocks for sale and stocks for growing on, millions of bulbs. That shows public opinion and its great demand.

Our American Gladiolus Society has been invited to hold its annual exhibition in the City of St. Thomas next August, and we are pleased with the invitation and happy in acceptance. We are coming and will bring our flowers and hope to see yours, but, most of all, we want to see you and become better acquainted.

CO-OPERATION BETWEEN THE GOVERNMENT AND THE SOCIETIES.

Rev. A. H. Scott, D.D., F.R.H.S., made a plea for fuller co-operation between the Government and the Horticultural Societies, and strongly advocated an increased grant for their work. He held that wherever a Horticultural Society is planted in country, town or city, that spot is brightened, bettered, enhanced in value and raised to national importance.

REPORT OF DELEGATE TO AMERICAN CIVIC ASSOCIATION'S CONVENTION.

WM. HARTRY, SEAFORTH.

Allow me first to thank you for the pleasure it afforded me to be your representative to that Convention which was held in Amherst, Mass., in October last. I left the town of Seaforth about three o'clock one afternoon, proceeded to Buffalo, took the night train there and arrived at Albany about six o'clock in the morning. From there we went to Springfield. This part of the trip was uneventful, but immediately after leaving Springfield, towards North Hampton, we shot out into the mountains, and I can assure you there was plenty for all of us to observe after that. The scenery was magnificent, beyond anything I can describe to you. Those imposing mountains were clad with verdure to the very top, there was intermingled the beautiful yellow of the hard maple, the higher colour of the silver maple, and in with it all the colour of the sumach and the deep green of the balsam, and all in all one of the finest sights I ever beheld. As we went on, we looked into a great ravine, as far as the eye could see.

After we got past Northumberland we started for Amherst, where the Convention was held. There was one thing which struck me favourably as I visited part of the town one morning quite early: I found that the speaker this afternoon talked about it in connection with his pictures, one of the most beautiful hemlock hedges, and never having heard of it being used for a hedge I could hardly convince myself it was hemlock until I tasted it. It was a beauty. Then there was among the shrubbery that beautiful tree—the hydrangea—that was in evidence everywhere. They were from four to eight feet high, spread out from four to eight feet, and the most magnificent foliage, flowers from fifteen to eighteen inches long. They were used here to cut off the rest of the garden from the front lawn, to separate one property from another, and as a decoration for lawns. I asked them how they get them to grow so luxuriantly and the answer was: we just plant them and let them grow. I suppose the country is particularly adapted for them.

Amherst is a town of 5,500 population. They tell me there are about 2,000 students, and the great Massachusetts Agricultural College is just a few miles out. "Frat" houses are everywhere.

We got up to the Agricultural College the following morning where the convention was held. I was very much pleased with one thing particularly. There were notice boards at the right distances, so that the newcomer might very easily find his way without very much enquiry. When I got to the hall, I was met by the Reception Committee, was very kindly greeted, and in a few minutes I met Mr. Wilson who had come in from the north way, and in a few minutes Mr. Wilson and I felt as much at home almost as in the City of Toronto.

The Convention was opened very shortly after that, and the students had been called in and filled the body of the hall, and the delegates occupied the gallery.

The first subject that we had, after the addresses of welcome given by the representative of the Commonwealth of Massachusetts and the Agricultural College, was "Parks." The spirit and tone of the whole convention was this, to make America a better country to live in. To that end all the papers and addresses were given and they seemed to follow that thought up pretty well. The first subject was Parks, and that led to roadways, and then Forests.

The speaker on Parks advocated very strongly that there should be a number of State parks in every State, not simply a great big park, here and there, but a number of parks in every State, convenient to the centres of population, that is the cities, so that men might get into their automobile on Friday or Saturday and drive to one of those parks for a week end and enjoy a real good week end, or secure a cottage there for a couple of weeks even.

That led to the thought of Better Roads. That was taken up and discussed, showing that it was well to put money into better roads in order that these parks might be utilized, thereby carrying out the idea of making America a better country to live in. One speaker said a park in Connecticut had paid for itself, had been established by a community and was then rented out to whoever wanted to holiday there, no matter whether they belonged to the State or not. You could drive there with your automobile, and could secure from the authorities a cottage, or a plot of ground where you could have your own tent, and in that way they secure enough money to keep the park up.

There was one paper that appealed to me particularly. It applied very much, not only to the United States, but to the whole of America, and that is our forests. One speaker referred strongly to the destruction of our natural forests in the past, how that so many of them had been cut down and destroyed, only a small portion of the trees that had been cut down were used and the rest were burnt, and the tragedy of the whole was that this land had been left there and not replanted, and to-day we are suffering very much financially from the lack of timber which we would have had if our Governments fifty years had replanted this land which is not fit for farm purposes but quite so for timber production.

The Chairman, making comment on it, said: "The flooring of the platform on which I am now standing, cost $40 per thousand, and to-day you cannot get it for $250 per thousand, if it can be procured at all." And that applied to the Dominion of Canada as well as to the United States—we have thousands of acres of land just as bare and vacant as the Sahara desert.

We also had a splendid address from our own Canadian representative, Mr. Thos. Adams, on "Garden Town Planning," and he spoke of that garden city in England where they had established a town with a plot of garden connected with every home, and gave us a complete description of that particular place and claimed it could be applied to any portion of the United States and be very fine indeed.

That evening an automobile trip was arranged for by the Committee, and all the delegates were taken from Amherst to Northampton, and from there through to Greenfield, where these houses were in course of erection. Some thirty were about completed. We got out and examined some of these, and we went over to another portion of the town where some thirty or forty were in progress, with some more to start. It was certainly a real demonstration of what can be done in that direction.

I was pleased on the afternoon of the second day when Mr. Adams told us that in Canada we were not asleep in that matter, that our Dominion Government had set aside some $50,000,000 dollars in order to help the Dominion of Canada in the erection of houses, and that out of the nine Provinces, eight had utilized that supply of money, and were moving along lines of that nature.

REPORT OF DELEGATE TO THE ROYAL AGRICULTURAL WINTER FAIR ASSOCIATION OF CANADA.

Thomas D. Dockray, Toronto.

At your last Convention, Mr. G. H. M. Baker, of Lindsay, Mr. J. H. Ross, of Winchester and myself were appointed your delegates to the Royal Winter Fair Association of Canada, and at the Annual Meeting of that Association your delegates were elected Directors, a Constitution and By-laws were adopted, Executive Officers and Committee were elected, and a plan of the buildings to be erected on the Canadian National Exhibition Grounds was approved of.

The Board of Control of the City of Toronto instructed the City Architect to draw plans of the buildings to cost about one million dollars and to call for tenders. When these tenders were opened in November, 1920, it was found that the lowest was about two millions, a prohibitive figure.

Then some delay occurred through an ambitious policy of linking up the Canadian National Exhibition Grounds with Old Fort Park and reclaiming 200 feet from Lake Ontario, and the possibility of placing the Winter Fair Arena at the Strachan Avenue end of the Exhibition Grounds.

But after careful consideration, the Winter Fair Association has very recently recommended to the Board of Control of the City of Toronto that the City Architect modify the plans so that the building will not cost more than one million two hundred thousand dollars (he thinks it can be done) and to place the buildings on the north side of the Exhibition Grounds, south of the site first chosen.

Many organizations, associations, clubs and citizens are contributing funds to assist in the good work. May we not bespeak the encouragement and enthusiasm of the Ontario Horticultural Association? And will you not help to make the Winter Fair a success by keeping its claims before your Horticultural Societies, and before any other organized bodies to which you belong?

THE AMERICAN HORTICULTURAL CONVENTION IN ST. THOMAS.

Dr. F. E. Bennett, St. Thomas.

This Society, which has been meeting for several years, has never met, I believe, in any city under about 1,000,000 inhabitants, and has never met in Canada, and it is my sincere hope that the people of the Province of Ontario will make this an event of a lifetime, one that will never be forgotten. I am speaking now about an international show.

Spirea shrub.

In former exhibitions, never before have the exhibitors from far away lands and from distant points in the United States and Canada had an opportunity of exhibiting their flowers, and the suggestion of our Society was that if these growers would only send the shape of the bulb, etc., to us, we would put them in a trial garden, plant these bulbs and we would try to develop them as well as we could. I am hoping one of the big irrigation system manufacturers will instal a plant—I am almost promised that a demonstration plant of the Skinner system will be put on the ground. I am hoping that one of our leading fertilizer plants will donate fertilizers to develop the bloom to perfection.

The growers who will exhibit at our show:

The Decorah Gardens are not so well known probably here as they should be, but they are sending a wonderful collection. Their varieties are really grand.

E. J. Kemp, of Little Silver, N.J., is sending a collection of his varieties.

Mrs. Austin will have the beautiful Evelyn Kirtland. We had some in one of our member's gardens, 6 ft. 6 in. in height.

Then she will have the Gretchen Zang; the beautiful Herada, the Bertrax, and Wamba.

Joe Coleman will send a collection of his plain and ruffled varieties.

Peter Hopman, of Hillegon, Holland, (one of the members is president of the Gladioli Society of Holland) is searching for a complete collection of novelties to give us. He is also sending several of his wonderful Foch collection.

Richard Diener, of Kentfield, California, is sending 1,500 of his seedlings and 2,000 of his named varieties, such as American Beauty.

R. C. Meader, of Dover, N.H., is sending his famous Lilywhite.

M. F. Wright and daughter, of Sturgis, Mich., are sending 200 of that beautiful variety of theirs, Louise.

We will have Lemoine's specimens and varieties.

Now, without fear of contradiction, I think this will make the grandest collection of varieties ever staged. The Alma College has been given over to us by the Board to be used as our convention centre. Splendid committee rooms, beautiful site, right in the heart of the city. We have a committee in our city, the Ladies' Auxiliary, of which we have the Honourable President here to-day, and the secretary, and their whole ambition is to give you an excellent time when you come there. As Mrs. Austin says, she is coming over to see us, and you know we have not anything to be ashamed of in Horticulture in Canada. Ours is not an autocratic society like some, and I am not condemning them. But it is the poor we want to help and educate, making it a democratic institution. I was going to suggest a trophy from the Horticultural Association.

In regard to the educational value of shows, our own Society exhibited in Detroit a few years ago. We went down to Boston last year and they said: You are pretty good sports in Canada and it is up to us to come back. We have people coming from New York, Massachusetts, Rhode Island, and we will have all the great blooms. Let us rise to the occasion. We do not care so much for our professional people. We want them to come, but still the exhibits from professionals will be certainly limited, but we want all the amateurs around the country. We want the united support of all to make this the first International Gladioli Show a success.

The Secretary *pro tem* of the American Gladiolus Society is Mr. Madison Cooper of Calcium, N.Y., and applications might be sent to either him or to me.

J. LOCKIE WILSON: Will it be necessary for those exhibiting at this American Gladiolus Convention Show to become members of the American Gladiolus Society?

DR. BENNETT: If they exhibited as a Society and sent it in as a Society exhibit, one membership would cover it. In interpreting it in that way, I am trying to make it just as broad as possible to include all, but if a man wanted to send a very big exhibit of his own, I imagine it would be necessary for him to become a member.

T. D. DOCKRAY: Will the St. Thomas Horticultural Society, as it does in its great Tulip Show, refrain from exhibiting for the prizes, seeing they are right on the spot, in the classes that we amateurs in Toronto would exhibit in? Our gladioli would have to come there from a distance.

Dr. Bennett: It was not the intention of the St. Thomas Society to exhibit, but we have this immense display ground, with everything labelled, and any of those who are exhibiting in that ground will be classed as professionals if they make an exhibit. Those flowers in the trial gardens are available for you to come and see. I do not think there is a professional grower there who cares about a prize. If they win it, it is on merit alone. Our Society did not intend to exhibit.

The Convention will be held on August 24th and 25th, 1921.

Mrs. Austin: We are looking forward very anxiously to coming over here and meeting you, and I hope you will not let the membership fee of $2 stand in your way of exhibiting. Come to the show and bring your flowers and I believe you will all feel you are getting your money's worth. Not only will you be a member of that Society, and have the reading of the *Flower Grower* for this $2, but you can bring your flowers and see ours.

Miss M. E. Blacklock, Meadowvale, then gave her practical address on "Some Worthwhile Varieties of Perennials," which she illustrated with beautiful slides which were highly appreciated.

THE CULTURE OF ROSES.

H. J. Moore, Toronto.

Position.—The first thing with which you will naturally be concerned in the culture of roses is the position. The roses that you will generally grow will be the Hybrid Tea varieties; these are crosses between the hardy hybrid perpetuals and the tender Teas. By crossing these two you get varieties which are fairly hardy and have a free flowering character. These are known as Hybrids. They flower from the first of July, intermittently, until November.

The position should be sheltered on the north and on the east, and if that shelter exists in the form of a structure, such as walls or fences of some kind, so much the better. If, however, such protection does not exist, then it may be made by planting beds of deciduous shrubs or of evergreens. If you have no shelter on the north and east, be prepared to protect your roses pretty well during winter, and you will probably find that you have just as much success as the people who have the existing protection in the form of structures or borders of shrubs.

The position should be well drained. Roses will not grow in a soil which has retained the water long enough to allow it to become stagnant. Water should always circulate in the soil so that it may keep fresh. It will circulate in the following ways: Some of it will pass away in drainage, some will pass upward through the stems of the roses. If any part of your garden is flooded late into the spring do not choose that area for your rose beds, rather place them on an elevation, which will be free from flooding during the late winter and early spring months.

The Soil.—The next consideration is that of soil. Sometimes people say the Hybrid Teas do well in sandy soil. Apparently they do for a number of years, but in a short while, you will notice that they begin to gradually lose their vigour and then they die outright. Take a walk into the woods, into the fields, and study the wild briar, see what kind of soil you find the strongest kind growing in, the kind with vigorous stems, it is in a heavy clay soil that is retentive of moisture, but not holding moisture to the extent that it becomes stagnant. Thus a clay loam is the best for growing roses—a clay loam containing 50 to 75 per cent. of clay is an ideal soil for roses.

Some of you will have light soils, some heavy. It is quite possible to improve any kind of soil for the culture of roses. If the soil is too heavy it may be improved by the addition of cow-manure, and of sand; and if too light it may be improved by the addition of clay loam and manure. So you need not be discouraged, no matter what kind of soil you have provided it has some fertility and is at least two feet in depth. If it is not two feet in depth, then you will have to import soil to extend it to that depth.

In case the soil is absolutely so bad that it is difficult to grow roses in it then you may prepare a bed by excavating to depth of 2½ feet or so, filling it in with broken bricks or stone, to a depth of six inches, placing upon this pieces of turf from the field and later filling to the surface with good fertile soil. thus making a rose bed that will be permanent. With proper manuring and cultivation you need not worry about remaking this rose bed in your lifetime.

In case you wish to make a very large border, and the soil is unsatisfactory, you may do it by trenching. This is not generally necessary. Ordinarily areas satisfactory for the culture of roses may be found without going to this trouble. Trenching may be performed as follows: Spread manure over this surface, make a trench about three feet wide, place the soil in the barrow and put it at the side of the plot that you are digging, invert the surface soil of the next three feet into the bottom of the first trench and the subsoil on top and so on until the area is trenched, and what are you doing? You are bringing subsoil on the top and you are incorporating manure. You are increasing the depth of the soil in which roses will grow from nine to eighteen inches. You are making a border satisfactory for a lifetime and you have something worth while when the work is done.

PLANTING.—Having satisfied yourself that the soil is right, the next consideration will be that of planting, provided, of course, you have chosen the roses. Plant your Hybrid Teas 18 in. to 2 ft. apart, and the Hybrid Perpetuals 2½ ft. to 3 ft. apart—Some of the more vigorous kinds may be planted even farther apart. When you receive your roses from the nurseryman, or from any other source, if you think they have been too long in transit, examine them thoroughly. If the bark of the roses appears corrugated, that is shrivelled, then you may safely assume that the cells have lost their moisture. The best thing to do with roses in that condition is to bury them for a week in moist garden soil, every part, stems and roots should be covered. If at the end of six or seven days when they are lifted, the shrivelled appearance has disappeared, then you may safely assume that the roses with ordinary care, after planting, will live. If, on the other hand, the bark has not regained its normal appearance, especially at the bases of the stems, and if these portions still remain shrivelled, then discard those plants or send them back to the firm which supplied them, withhold payment, and if your money has been paid, demand its return. You will find in all probability very few of the roses have shrivelled, but still I have known whole shipments of roses that never recovered and had they been planted, of course, the money would have been lost.

When planting roses, make the holes in the bed just so wide that, when the roots are spread out, the holes are at least six inches wider than these when extended. Never try to crowd the roots of roses into a hole too small to contain them. When planting, let someone help you with the operation. First dig the hole, fork up the bottom of it, and then have the person helping you hold the plant in position, just so far down that the bud graft is about two inches lower than the ordinary soil level, so that when the operation of planting is completed the bud will be buried just two inches deep in the soil. If, when planting you do not bury the bud that depth, and cover it with soil, the budded portion, the rose stems proper may freeze. The soil has a tendency to protect and save the lower buds on the stems, and it is from those lower buds that the strongest branches spring that will bear the largest flowers. Another reason that you bury the bud is this: when a rose is budded (grafted) upon a stock, there is just a possibility that through some unforeseen cause, the stock may die—the soil may be unsatisfactory—but if the bud is covered with two inches of soil so that the base of the rose stems proper are in the soil when the stock commences to die the rose proper may make an attempt to establish itself on its own roots, and it may live independent of the stock on which it was previously grafted.

The first Civic Rose Garden in Canada, planted in spring of 1919. A gift to the City of St. Catharines from Ex-Mayor W. B. Burgoyne, a former President of the Ontario Horticultural Association.

Did you ever see an automobile wheel lying on the ground? If so, you will notice how the spokes radiate from the hub right to the rim. Now, when planting roses trace out the roots and plant them in the soil almost horizontally to the source from which they spring from the stock, never rising, but just gradually inclining. With the hand fill in the soil and press it below, above and around the roots of the roses. When the hole is perhaps half filled by means of the hand, and while your assistant still holds the rose in position, carefully tread the soil down with your feet but be careful not to injure the bark on the rose, for if injury accrues through that or any other cause, then canker may later infect the plant. Canker is a disease for which there is no known remedy. Having firmed the rose in position by means of the feet then you may take the spade and fill in the remainder of the soil to the extent of covering the bud, and if the weather is dry you should water the roses. Always water your roses twice if the weather is dry, and see that the soil is saturated to a depth of fifteen to eighteen inches.

There are two seasons during which you may plant roses. In localities where the temperature does not fall, say 12 deg., or more below zero, roses may certainly be planted in November if you are prepared to protect them. April and early May are the best times in colder localities. I would not hesitate at all to plant roses during the fall in any locality where the temperature does not fall more than 12 deg. or so below zero.

PRUNING.—Having planted your roses (and supposing they are spring planted) you will naturally be concerned with the proper way of pruning them. Prune your strong growing roses lightly and your weak growing roses severely. We prune weak growing roses severely because severe pruning induces growth; light pruning tends to check it. In pruning your Hybrid Teas you should prune them so as to allow about four inches of stem to remain above the bud, but do not prune all the stems to the same height, do not give the bush an appearance of being sheared. Rather prune one branch three inches, the other four inches, another five inches, and so on, thus making an average length of four inches above the stock. Remove all the weak growths and leave about three strong ones on your Hybrid Teas, and when pruning do not use shears or secateurs, as you cannot get close to the stems with these and you will leave stubs into which disease will find access. The disease will work down into the stem and then into the root, and the rose will simply die out. Use a knife, get a pair of gloves. Always cut close to a bud, just above it, and when pruning, see that that bud points outward from the centre of the bush, not inward. If all stems are so cut a cup shaped opening will be left in the centre of the bush. This mode of pruning will favour the admission of light, air, and moisture, and a certain freedom from insects. Insects like a place right in the centre of the bush, where they can hide, but by opening up the centre of the bush, by proper pruning, your roses largely will be free from insects.

When pruning your Hybrid Perpetuals, first remove the dead wood as you will also the weaker growths, leaving only four to six good stems, cutting these in the first year after planting to a distance of eight inches from the bud. Do not leave all the stems of the same height. Cut the stems as previously recommended for the Hybrid Teas. You may ask, "Do I prune my roses four or eight inches respectively every year from the bud?" No, four or eight inches from the previous year's wood. And in that way you will build up the foundation of a magnificent and shapely bush, gradually adding to it year by year, all the time encouraging it in vigour or retarding it according to the method of pruning you adopt.

CLIMBING ROSES.—In colder localities it is not well to do any pruning to Climbing Roses during the summer or fall. Some people cut their climbing roses back after the flowering is over, but if we get a severe winter any remaining growths may be killed, thus next year there will be few if any flowers. It is well, after the Climbing roses stop blooming, after July or August, to remove the flower trusses, which otherwise might form seeds, but after removing these leave the roses alone until April or early May, then prune. That is the time that you should prune all your roses—April or early May.

In pruning Climbing Roses, simply remove the weak growths, train in a few of the young, strong, vigorous ones to the supports and shorten the vigorous ones at points where they may interfere with structures or where they cover the pergola or archway satisfactorily.

PROPAGATION.—There is generally a supposition that roses will not grow upon their own roots. Many of the Hybrid Tea varieties will, also the Hybrid Perpetuals. When you prune your roses in spring save some of the growths. Make the cuttings as follows: cut them above a bud at the top, and below a bud at the bottom, make them eight inches long, plant them four inches deep in clumps of five or so and place over them a half gallon glass pickle jar or some other glass covering to hold the moisture around them. Bear in mind that these cuttings, as well as any other cuttings, have no roots to supply the necessary moisture. By employing the glass pickle jar you will find that many of the cuttings will root. I saw an experiment tried by an amateur. A lady at Niagara Falls planted twelve cuttings under a glass pickle jar, and in the fall she asked me to look at the plants, and nine of them were living. In the following spring those plants were taken, planted about a foot apart, and in two years from the time of the cuttings being made and inserted in the ground they were planted in permanent positions in the rose bed. You may take cuttings of ripened wood in November if you like, but do not take many from each plant, bury them in moist sand in boxes in the cellar, in a cool temperature, just above the freezing point, and take them from the boxes in the spring and you will find some callouses have been formed at the base of the cuttings which will be the points from which the roots will emerge when you plant them in the spring. You will find you can do that readily with Hybrid Teas, Hybrid Perpetuals, and also Climbers.

Climbing roses may be raised from cuttings of various lengths, eight or twelve inches. They will grow from cuttings satisfactorily. Place them in the soil in a shady position, make them firm, water them when necessary, and you will find that many of them will root. I have an instance of a cutting taken by Arthur Zimmerman from a Climber on the street where he lived. He stuck it in the soil beside his verandah in the ground and forgot about it. Three years from the cutting stage it was a magnificent sight. To plant cuttings of any kind out in the ground in the spring when the sun is very powerful is taking a chance, as you must preserve the moisture in the cells. It is better practice for the amateur to cover them by means of a pickle jar, or to shade them from the sunshine.

Budding the rose is a very interesting operation. Buds are used of any desirable variety and the stocks may be the wild briar, Manetti or Rugosa. In July you take the bud and you insert it in a T-shaped incision on the stock near the ground and when this is done the bud is tied in position, and the following year it will start into growth. The stock in spring is cut above the bud, and the growth from the bud starts life upon another stock. Budding is usually done about one inch from the ground. Standard roses are budded about four feet from the ground and half standard about two feet.

MANURING.—Why do you grow roses? For the flowers. What is the element that produces flowers on roses? Phosphorus largely. And if so, why do you haul large quantities of stable manure into your beds, manure which supplies nitrogen largely and produces a very strong growth of the stems to the exclusion of flowers. Sometimes when roses are manured with stable manure they will not produce many flowers but rather produce very vigorous stems. Buy a few pounds of bone meal, sprinkle it on the surface of your beds in the fall and fork it in; alternately—one year cow manure, the next year simply bone meal or phosphatic manure, and you will find you will get flowers.

Roses require a cool soil, that is one of the reasons why clay soil is the best for them; it is cooler than a sandy humic soil. Therefore, do not use horse manure, it heats. Use cow manure, which is cool and watery, and tends to make the soil that way, supplying coolness, and moisture to the soil—conditions without which the rose cannot satisfactorily grow. Manure with cow manure till your roses are growing vigorously; then alternate each second year with bone meal, or other phosphatic manure and you will get roses.

Where roses bloom in profusion.

I said roses require a cool soil. Why is a soil manured with stable manure hot? Simply because it is darker in colour. By adding lots of stable manure to your rose beds, you will make them darker in colour and the soil will absorb and retain the heat from the sun to a greater degree and for a longer period than will light soil. That again is one of the reasons why clay is cooler than the dark soil—it is cooler in summer because it is light in colour.

Winter's Protection.—There is a vast difference between a manure and a protective mulch, and the sooner we realize that, the better the success we will have with our roses. A manure is given to the soil to fertilize it, to make it rich in plant food. The protective mulch is placed on rose beds to protect them. If you place manure on rose beds in the fall it packs down tightly, freezes solid, and largely prevents the entrance of atmospheric air, also it prevents the escape of the gases of fermentation from the soil; but mulch which is composed of straw and fibres does not prevent such interchanges of air. The air from the atmosphere passes through very, very slowly, and so the gases, the result of fermentation in the soil, will pass out and through the mulch very slowly, and the interchange being slow, the roots of the roses will not be chilled. Compare woollen mitts and kid gloves on a cold day, when, naturally, the woollen gloves keep the hands so much warmer because the fibres of the woollen gloves are looser, the air between the fibre neutralizes the cold as it enters and it exists as a warm cushion of air around them. That is one of the reasons why you apply mulch to roses instead of manure.

In other places where you have special roses growing you may protect them by driving a stake into the ground; then, after tying the bush to the stake, you place hay or straw over the bush and tie it thereto. The stake serves two purposes, in that way. When a rose is tied to this stake it does not swing in the wind. If the ground is frozen, as it usually is in the winter, there will be a crust of ice on the surface and where the ice touches the stock injury may accrue and disease may enter. The stake supports the covering and prevents injury. It may be unnecessary to cover the aerial portions if the lower portion is covered with mulch or litter.

MICE ATTACKING ROSES: In protecting roses in the forementioned way or by mulching, never mulch your roses until the ground is permanently covered with snow or mice will burrow therein. After the first snow falls tramp that snow right into the mulch. Then mice will not burrow and the roses will be largely left alone. An experiment conducted along those lines at Niagara Falls some years ago proved this fairly conclusively.

INSECT PESTS: A word about insect pests. There are only two kinds of insects that trouble your roses (and yet people will say there are millions)—those that bite the leaves and those that suck the sap. Those, such as caterpillars, that bite the leaves may be poisoned by arsenical poisons such as arsenate of lead. Those that suck the sap, such as green fly, may be killed by nicotine, two or three spoons full to a gallon of water.

FUNGUS PESTS: There are one or two very bad fungus pests, it is to be admitted; one is mildew. Mildew may be checked in two ways—by sprinkling flowers of sulphur over the patches or spraying with potassium sulphide, ¼ oz. to a gallon of water. But if the roses are near a structure, then interpose burlap between the structure and the rose, otherwise the solution will stain the building.

THE SELECTION OF ROSES: I would like to convey to you the feeling that is in my own heart regarding rose culture. If I lived in the heart of New York or any other city and had only a small area that was surrounded by walls, and if into that area the sun would pour and make it hot, and if hardly a breath of wind would stir, I would make an attempt to cultivate roses, but I would choose varieties that could live under those conditions and flower the most satisfactorily. I would choose the dark coloured roses, because the light coloured roses bleach out very badly, and they usually bleach to something that is undesirable. Therefore, I would choose dark coloured roses, and when they bleached they would change to a colour perhaps more beautiful, and when they bleached till the final colour was displayed it would perhaps be just as beautiful as the original colour. At an exhibition a cup was offered for the best twelve Ulrich Brunners. Three judges were judging that exhibit and they could not agree as to whether a certain exhibit was composed entirely of Ulrich Brunners or not. Some of the flowers were different than others, there were three different shades, one shade just as beautiful as another. And no fault was found when the prize was awarded to the exhibit with the three colours. It was simply a question of the stage of maturity when the flowers had been cut from the bushes.

Suppose I have a garden out in the country or perhaps in the city where I had a nice sized lot. If I could only afford one bed of roses Hybrid Teas would be the choice, and if it were possible to plant eighteen different varieties, or any large number therein, such would be done. If I had four beds I would still have Hybrid Teas, and if more beds were possible some Hybrid Perpetuals and Baby Ramblers would be planted alongside the Hybrid Teas. The Hybrid Perpetuals flower in late June and early July. The Hybrid Teas would flower about the same time, and intermittently until November. The Baby Ramblers flower largely about the end of July and August and intermittently into the fall of the year; so that I would try to extend the period of blooming of those roses over as long a time as possible, and make my garden beautiful from the middle of, or late June until the frosts of winter.

Cultivation: Go out into the field in the hottest day of summer, and you find a boulder. You will find the surface of that boulder exposed to the sun, white, in all probability bleached. Turn the boulder over and on its underside you will find moisture, and in the depression in which it laid you will also find moisture. This means that somewhere in the soil there is a reserve of water. It may not be in the form of water but it may be in the form of moisture. Now, the reason that the moisture could not escape into the air is this: In all soils there are little imaginary tubes through which the moisture rises to the surface, and the mouths of those little tubes are open, and the sun and wind simply lap the moisture out of the soil to the extent of ridding it of 80 per cent. of its content. Now, how can good roses grow in such a soil? Cultivation makes it possible. The first great principle of cultivation is to admit the oxygen of the air so that the soil will be sweetened and the mineral food will be released; the second is to conserve moisture in the soil; and the third to remove the weeds. When you take a rake or a hoe and you break the surface of the soil you block up the mouths of those little tubes. The moisture then can only rise to the surface, but it cannot escape to the atmosphere, and you can change the course of that moisture into the stems and the leaves of your roses, and then the moisture having performed its function of feeding the plant transpires into the air and is not wasted, so that instead of 80 per cent. of the soil's moisture being wasted, only from 10 to 20 per cent. is wasted where cultivation is properly effected. The moisture could not escape from the soil because the boulder choked the mouths of the tubes.

The Pegging Down Method of Culture.—Roses may be grown by what is known as the pegging down method, a method which is not largely practised but capable of great results. Take the stems of some of your vigorous roses, bend them down to nine inches from the ground and tie them to stakes driven therein. One rose, Ulrich Brunner, so grown bore 72 almost perfect blooms at one time. Any of those roses so grown were capable of winning that cup in the exhibition of which I previously spoke. Six dozen could have been taken from that plant, each dozen capable of winning the cup. With proper cultural methods, pruning, cultivation and spraying, it is possible to get many large flowers on plants adapted to this form of culture. The flowers have the appearance of carpeting the ground with beauty, which was not possible under the other method of culture.

PLANTING ROSES ON A TOWN OR CITY LOT.—To lay out a rose garden, you should have a plan and try to live up to it, simple though it may be. Without a plan you never do get things right. Rose beds in a small lawn should be at or near the boundaries. Let your rose beds give a setting to your lawn instead of giving your beds a setting therein and cutting up a lawn already too small.

While showing the slides, Mr. Moore drew attention to one among others which showed large lumps of clay soil which could hardly be broken, and yet in such a soil the rose bushes were growing strongly and flowering profusely. If you wish to grow roses, he said, get rid of the idea of a soil that does not require labour to work. Will roses grow under difficult conditions? The most beautiful things of God's creation are born out of travail and where the conditions have been harsh. Roses may be grown almost anywhere if a little love is thrown into their culture. The secret of it all is love.

I once knew a man who did not seem to love anything but flowers, but by example he set the whole district aflame with beauty. Men who love these things and put their love into practice preach many good sermons. You have not to go to church always to hear a good sermon.

In a certain city a man owned a shack. He was induced to paint it and the Horticultural Society gave him a climbing rose. It cost twenty-five cents. The thought of that shack brings to mind this little poem which you may have seen in the Annual Report of this Horticultural Association:

Little beds of flowers,
Little drops of paint,
Make a pleasant cottage
Out of one that aint.

The shack was converted into a home and its value was increased by $300. What if every member of a Horticultural Society did that much every year. A little paint, a single Climbing Rose—30,000 members. The Ontario Horticultural Association is doing one of the greatest works that is possible upon this earth, and the officials are to be congratulated on the work they are carrying out, from the superintendent down to the humblest worker. If there is one thing that is going to save Canada from Bolshevism it is beauty. A tidal wave of enthusiasm is now sweeping Ontario that will swamp the barriers of Bolshevism and blot them out forever as far as this Province is concerned. We have to teach the children to love something and to do something which they love, otherwise they will go to other places, and the price to the parents of those children will be eventually too terrible to pay.

If there is anyone here to-night who is a landlord and owns a number of houses, and if in those houses there are people living who would beautify if the landlord would make it possible for them to do so by putting a little paint on—what should that man be doing to live up to the ideals of Canadian citizenship? He is not doing that as long as he keeps all of that money salted away in the bank. If you want to be good citizens, encourage those people to beautify their homes and your property will be benefited far out of proportion to the money that is put into it.

Referring to a slide on the screen in which was shown a grave beautifully decorated with roses in bloom, Mr. Moore asked the audience if any person present knew of a grave of a relative which was as beautiful. On the tombstone was a foreigner's name. A man lived in a city where he had only the top of a fire escape for a garden, so he made a garden 6 ft. by 2 ft. over his mother's grave. I would make, said Mr. Moore, the cemetery a place for the living, and I would look upon that mother of mine down there as a living soul. Where did you first hear of God and of His beautiful creation? At your mother's knee. Then why not revere her memory and pay tribute to her. I'm tired of listening to the man who says, "Canada is too young to carry out extensive beautification; things will come along all right by and by." Not too young for "dens and dives, glitter and glare, and sin"; not too young for palatial theatres and dance halls and things that bring in a lot of money. (At this juncture a picture showing the first Civic Rose Garden was thrown upon the screen.) This is the Burgoyne Rose Garden at St. Catharines, a thing of beauty. Let us have Civic Rose Gardens all over Canada. St. Catharines was not too young for beauty, no place is when the work is prompted by love.

Mr. Moore wound up with an appeal for a more general growing of these beautiful things and instilling the love of them into all those the members came in contact with. He said: If every nation was interested in the love of these beautiful things and we exchanged, internationally, beautiful plants, if somebody would occasionally slip across the line with a bouquet of flowers, don't you think if we had such a League that it would be the best kind of a league to cement international relationships? If you were ill in a Toronto hospital and some kind person from the United States came in with a bouquet for you, would you not think more of it than if it were brought by one of your own friends? One-half of the world to-day is destroying civilization, the other half is trying to up-build it. Why not be a captain in the band? It will be through the beautiful things of nature and the churches that things must return to their normal balance. It is really the beautiful things which take us into the churches.

After speaking in a western town two years ago on Roses, a lady came up to me and said: "Did you, on the occasion of your last talk here, notice a man walk out before you finished?" She said, "That boy was my son-in-law. He married my daughter. They have two children. I was on the point of taking that girl back to my bosom. Her husband gambled his money. Those children had neither stockings or shoes. What about it? That man, instead of gambling his money, went home and grew roses Saturday afternoons. He worked in his rose garden even on Sundays." Was it wrong? I would rather we did not work in the garden on Sunday, but was it not a better thing to do than to gamble? That is preaching a sermon in another way than from the pulpit, and do you know that some of us are afraid to mention the name of "God" in our neighbour's presence.

Opportunity! Are you going to enjoy the roses of to-day? You may not have them to-morrow, you may not be here to-morrow. I want to thank you for this privilege of speaking even if I have kept you a long time. But this is my way of thanking God for His sunshine, for His rain, and for the breath of life He has breathed into my nostrils, to enable me to work with my hands among these beautiful things that He has given me to work with. You cannot buy these things with money. They cost only a little love. You can have them for nothing.

TREASURER'S REPORT.

C. A. Hesson, St. Catharines.

In presenting his report the Treasurer called attention to the fact that the Association's finances were not at all in consonance with the increase in membership. which had increased from 6,000 to practically 30,000 to-day. If any special occasion should arise, said the Treasurer, which the Association might like to honour, there would not be sufficient finances.

The Treasurer then drew attention to the fact that the American Gladioli Society was for the first time holding its convention in Canada. Would it not be a courtesy, he said, to this Association to recognize their coming to us in some way or other. It may be by a resolution, it may be by a presentation of something material, a cup for competition, but when you go into a cup or a trophy of any sort, you know it involves expenditure.

Wistaria vine on the verandah of Mr. E. G. MacCallum, Grimsby, Ont.

He then referred to the question of affiliation, and said of the 120 societies listed, fifteen were not affiliated. The seven extra over last year are new societies probably. Seventy-two have paid their fees for the current year. Thirty-three societies have not yet paid. After last Convention he notified all those in arrears, both for a number of years and the just current year.

As to number of delegates attending this convention, we always have some difficulty in arriving at a definite figure. We have the card system, those cards should be turned in by all the delegates to the secretary and myself, and we find that invariably they are not turned in. We also have a register at the door, and while that is somewhat more satisfactory as representing the attendance, it does not altogether show the attendance of delegates because visitors also sign that register. I have cards representing 106 delegates, the register shows 115. Last year 86 cards were turned in. Judging by the attendance here yesterday, I should imagine that this is not a proper representation of the delegates, it does not seem to me to be near enough to the actual attendance.

The Treasurer then moved adoption of his report, seconded by Mr. Thompson.

Mr. Davidson, Chatham: The societies are not properly educated as yet to these matters, and especially in regard to the affiliation.

Mr. Baker said that last year he had gotten a list of the societies in arrears, and had written to the various district directors telling them the societies' names, and thought the ones in arrears had been nearly cut in half. And he hoped the continued work of the district directors would be productive of still better results. The Treasurer's report was then adopted.

The financial statement appears on page 6.

REPORT OF THE COMMITTEE ON NAMES AND VARIETIES.

Prof. W. T. Macoun, Ottawa.

Since the last annual meeting the Committee on Names and Varieties has become so disorganized that it has been difficult to carry on the work. Mr. H. J. Moore, the Chairman of the Committee, having become engaged in another line of work, namely, in connection with the Public Highways of Ontario, has not been able to give the same attention to the work of the Committee as in the past. Mr. F. E. Buck, Secretary of the Committee, who spent much time in preparing material for the report, left Ottawa in the autumn for British Columbia, where he accepted a position at the University of British Columbia, and our old friend and co-worker, Mr. Wm. Hunt, died suddenly a few months ago, as we all know too well. The result has been that little has been done. The Committee should be reorganized at this convention and another strong committee appointed. There is good work to be done, and the continuity of it should not be broken.

In view of the necessity of having a new committee, it may be well to review what has been accomplished since the Ontario Horticultural Association was founded.

In 1907 two committees were appointed, one on Plant Nomenclature and another on Novelties. The work of these two committees is now covered by the Committee on Names and Varieties. The Committee on Plant Nomenclature made its first report in 1908, when rules of Nomenclature adopted by various organizations and suggestions for the Ontario Horticultural Association, were submitted. The Committee on Novelties presented a descriptive list of new and not well known plants.

In 1909 the Committee on Plant Nomenclature reported on lists of best varieties of phloxes, dahlias, gladioli, and irises, and the Committee on Novelties gave descriptive lists of new and not well known annuals and perennials.

The Committee on Nomenclature gave lists of best cannas, lilies, pæonies and roses in 1910, and the Novelty Committee reported on new flowers and shrubs.

In 1911 the Committee on Nomenclature gave a list of names often mispronounced with their proper pronunciation, also lists of best chrysanthemums, begonias, and sweet peas. The Novelty Committee reported on new plants. Somewhat similar work from both committees was reported on in 1912.

These two committees were combined in 1912 under the name of the Committee on Names and Varieties, and in 1913 the new committee presented a further list of correctly pronounced words, a list of the meaning of 100 Latin adjectives used in plant names, and a list of novelties.

In 1914 the committee gave a list of thirty annual plants with their most popular English names, an additional list of fifty Latin adjectives and their meaning, a list of novelties and plants not well known, and a fifth list of names often mispronounced.

The report for 1915 included lists of best pæonies, irises and phloxes, a further list of popular flowers with pronunciation and best common names.

The committee lost a valuable member in 1916 in the death of John Cavers, who had shown great interest and done much work. That year a list of novelties and a descriptive list of greenhouse primulas were given.

In 1917 a list was given of twenty-five best Darwin tulips; list of best Hybrid Perpetual Roses; and a descriptive list of hardy and semi-hardy primulas. That year the committee was asked to prepare score cards for the judging of flowers, and in 1918 submitted score cards gor pæonies, roses, sweet peas, tulips and narcissi, and notes on the judging of flowers. A list of annual flowers with common name and pronunciation and relative hardiness was also given.

In 1919 score cards on dahlias, asters, and gladioli were added to those previously submitted. Suggestions were also made on the selection of judges.

It will thus be seen that this committee has a good record. There has been enough material published to make a fair sized pamphlet.

What is needed is to keep these lists of best varieties up-to-date so that they will make the best reference lists that the members of the Ontario Horticultural Societies can obtain. The work of score cards and judging should be continued, and information on the best way to carry on horticultural exhibitions. The registration of new plants should receive attention, and everything should be done by this committee to keep the members of the Horticultural Societies posted as to the best varieties so that the quality of the flowers grown in the gardens of the Province of Ontario will be of the very highest order.

The report was adopted.

The following were appointed as a new committee on names and varieties: Prof. Macoun, Dr. Bennett, Miss Blacklock, F. L. Green, Greenwood, Ontario, Miss Yates, Mr. H. J. Moore, Mr. Mitchell, Prof. Hutt.

A SUBURBAN KITCHEN GARDEN.

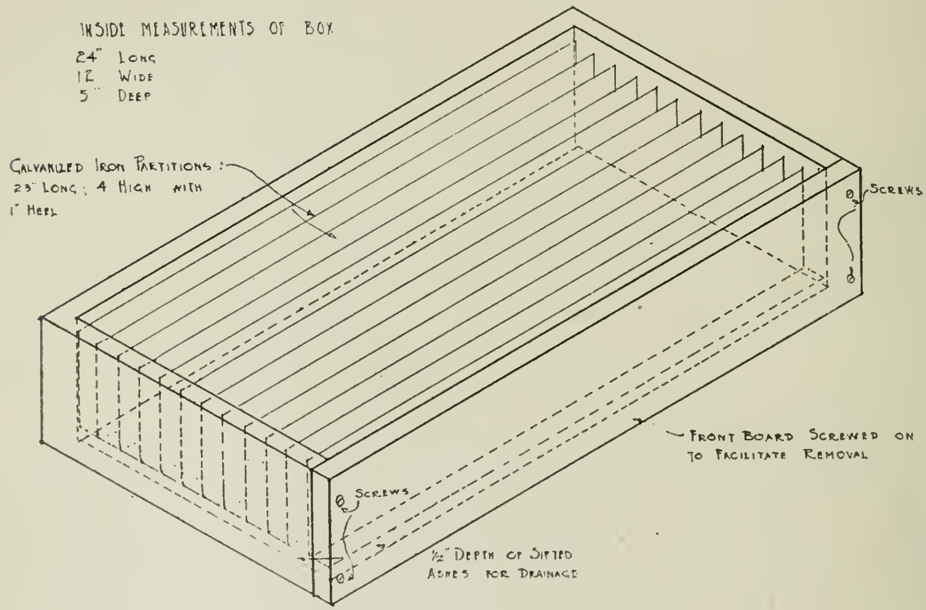
L. H. Baldwin, Toronto.

The story of my vegetable garden on the high lands north of Upper Canada College. The soil is a very heavy clay. I suppose that this is natural, otherwise we would not have this high ground remaining to us. The clay soil is of the variety that would make most excellent bricks. I can well imagine this from the hardness with which it will bake when left to the elements, rain and sun.

When I first worked this ground as a garden I have known it to be too wet after a heavy rain to do any work upon it at nine o'clock in the morning, and then by two o'clock in the afternoon of the same day to be so hard that an ordinary garden rake would make hardly any impression upon the surface. My garden location, with a fair slope to the west, had been an old pasture field which had not been cultivated for many years, and full of twitch. The English gardener I first had to help me advised what he termed "bastard trenching." That is to say, we dug it about two feet deep; but did not turn the soil completely upside down. At one side of the garden we dug a trench two feet deep and a foot wide, and next to this a trench a foot deep and a foot wide. The soil from these two trenches was carried over to the other side of the garden. A layer of manure was placed at the bottom of the two foot trench and the bottom earth of the next trench was thrown on top of this manure. On top of this we placed another layer of manure, and then commenced another trench a foot wide and a foot deep by throwing the top earth over the last layer of manure. We kept repeating this right across the garden, and finally filled in the earth from the first two trenches into the last open trenches. We were careful to throw out all roots of weeds and twitch grass. This made a good beginning; but even then the top soil would bake as hard as a brick upon the slightest chance to do so after a heavy rain. I then sent some samples of the soil to Professor Harcourt at the Guelph Agricultural College for analysis, and he reported that the soil was very deficient in lime, and advised an application of crushed limestone at the rate of two tons to the acre. I procured this from The Crushed Stone Company at about $6 per ton. I applied it as a top dressing immediately after the garden was dug in the spring, and raked it in as well as I could. The effect was almost at once apparent, the soil becoming more friable, and much more easily worked. The limestone was applied five years ago, and now the soil is sweet and loose, and a real joy to work upon.

My plan for cultivation is this. I have the garden dug in the spring just as soon as we can have it done. It will even yet dig up in a fairly lumpy condition after the winter; but after a good rain we go over it with an ordinary garden rake when fairly dry, and afterwards with a bucco rake. This plan is kept up all summer, that is to say, whenever there is a good rain we go over the whole garden as quickly as we can with an ordinary garden rake with good sharp prongs. and then take time to make good use of the bucco rake between the rows and over any ground not already planted, and keep it well raked until we get a fair depth of dry mulch. The result is that practically we never have any weeding to do. The weeds do not grow. They cannot in the dry mulch. We were at one time told that this dry mulch broke the capillary attraction in the soil, and held the moisture back from the surface so that it would not evaporate and be lost to our plants. I have seen it stated somewhere that this is not true science; but all I can say is that I always find moisture under this dry mulch in the dryest weather in summer. To me raking soil in fine condition is a real pleasure, and to go out in the cool of the evening when it is dusk and rake for an hour is a most restful occupation. I frankly admit I hate weeding. I believe an hour's raking done at the right time will save five hours' weeding later on. The pleasure of gardening too is very much increased. There is a real joy in seeing the freshly raked soil, your plants thriving, and no weeds.

THE PLAN OF MY GARDEN: I am outside the city limits and have my own water and drainage system. The liquid from the septic tank is discharged into two distributing beds each about fifty feet square with the tile pipes laid about fourteen inches below the surface. I have it arranged so that I can hold the liquid in the upper bed or let it down to the lower bed as I wish by using a gate valve. The rest of my kitchen garden is divided into three equal plots of thirty-eight feet each; the whole garden being fifty-two feet wide. One plot I seed down with giant red clover for a year. This leaves me with the other two plots to work and crop. One has the clover of the previous year dug under. Upon the other I put a good dressing of well rotted manure and leaf mold. This makes a three years' rotation and I alternate with the two septic tank beds. At each corner of these plots and septic tank beds I have an iron stake, and the rows are set out in relation to these pegs by measuring with a tapeline. The plan that suits one plot is equally applicable to the other two. With the experience of a few years I have been able to so plan my garden that there is now little or no waste. That is to say, the garden produces from week to week just about the amount of garden produce my household demands, and by keeping an exact record of the name of the variety of vegetable grown and the date of maturity for table use I have been able to a great extent to avoid overlapping and to extend, for instance, the period of succession of green peas.


INSIDE MEASUREMENTS OF BOX
24" LONG
12 WIDE
5" DEEP
GALVANIZED IRON PARTITIONS: 23" LONG; 4 HIGH WITH 1" HEEL
SCREWS
FRONT BOARD SCREWED ON TO FACILITATE REMOVAL
SCREWS
½" DEPTH OF SIFTED ASHES FOR DRAINAGE

SEED BOX FOR EARLY CARROTS.

The rows of seedlings come out with each strip of galvanized tin, and can be planted in a trench without disturbing the roots. Loosen the earth from the sides by running a table knife down the length of each row.

I have a working greenhouse in which I can start many things under glass. My onions I sow on February 24th. Early beets and Swiss chard on March 1st. Early cabbage (Wakefield), cauliflower, and carrots on March 21st. Tomatoes on March 25th. Early corn on April 25th and a second sowing of corn on May 15th. These are all sown in the greenhouse. The first sowing of corn in six inch pots and the second sowing in four inch pots. These are all moved out into cold frames just as soon as weather conditions permit. I find it a great advantage to germinate the seeds in boxes in many cases. For instance, with beets they very readily transplant. In fact, I would rather transplant a row of beets from seed boxes than thin those sown directly in the garden row. You can choose a day suited for the planting. You can have the small plants in the seed boxes properly moistened, and you have been able by proper cultivation to have the ground in the very best condition for planting and free from weeds. The plants soon take root and you can go on cultivating them at once as you can see them. There is not the danger of distributing them as with seeds and very small seedlings. Carrots I admit are a ticklish, tedious and trying thing to transplant; but have had very good success with them. This year I am going to try out a special seed box made for carrots.

You will note from the plan of the clover bed that the late beets are placed twenty-four and forty-two inches from the iron stake while the early carrots and early beets are at twenty-eight and forty-six inches respectively. This leaves only four inches between the row of late beets and early carrots, and between the row of early beets and the row of late beets; but this creates no difficulties. The carrots sown in March were ready for the table last year on June 17th, and the early beets on June 20th. My late beets were not sown until June 4th, so that the early carrots and early beets were quite ready to make way for the later planting of beets. As a matter of fact I have used the leaves of the early beets standing in their row four inches from the line of the later planting as some shade for the younger plants. As soon as these were rooted I pulled up the balance of the early beets. By judicious pulling of the early beets you can leave a fair covering for the row of later beets when planted. The Golden Bantam corn was ready for use on August 1st last year, and I have had it as early as July 20th. The last sowing of corn on June 25th was ready on September 18th and kept us in corn till the frost set in about October 1st. By making six sowings of selected varieties of garden peas I had last year a season for green peas for the table from June 28th until the end of August. I plant corn in a trench so that when the plants get well above the ground and stand about a foot high I can fill in above the roots. This gives the plants a very firm hold in the soil so that they are not so apt to blow over. When seeding corn I make a trench with a three-cornered hoe as deep as the hoe will make it, and then simply shove the seeds down a sufficient depth to germinate. I sow the corn about three inches apart in the rows, and when about a foot high select the very strongest plants leaving them about a foot apart in the rows.

My melon bed comes in the regular layout of my garden. When having the garden dug in the spring I try to give an extra application of well-rotted manure and leaf mould in the space allotted for the melons. When seeding the melons I make a trench with a three-cornered hoe about an inch deep and place the seeds at the first sowing on May 10th about a foot apart. The second sowing on May 17th about four inches from the first seed sown, and on May 24th again four inches from the last sowing. At each sowing a little leaf mould is placed on top of each seed. This marks the spot and is a guide for the next sowing. This gives you a row with the seed four inches apart from end to end. Now, you may have very good germinating weather just after the first sowing (May 10th) but followed with too chilly days and perhaps frost. Then you have the second sowing to take its place. These may both have a setback and you then have the third sowing (May 24th) to make good. When the melon plants attain the size when they begin to throw out runners I have a good number of plants from which to make a selection. I thin them out leaving the strongest and most vigorous plants about a foot or eighteen inches apart. I have made a practice of having two rows of melons four feet apart; but I am rather inclined to think that it is better to have more vines so that you will have a good covering to shade the roots from the attacks of very hot sun on many very warm days in the summer. This year I will plant a third row in between so that I will have three rows two feet apart. The row of spinach two feet from the outside rows of melons, and the two rows of early beans outside the rows of spinach are well out of the way by the time the melon plants extend that distance. I have grown the Rochester Surprise melon for a number of years and believe it to be our very best melon. None better in flavour and a good cropper. I gather my first melons generally in the last week of August. My tomatoes I plant two feet apart in the rows and prune to a single stalk. The rows are three feet apart. This seems to me the best plan with the variety I grow, Carter's Sunrise. It is a small tomato; but excellent for the table and ripens early, very prolific, a smooth skin, and beautiful in colour. It is generally grown only as a greenhouse tomato; but I like it just as well for the garden. I train the plants to a trellis made with bamboo poles supported by builders' laths; having a bamboo rod running along the top about four feet from the ground.

I try to select my peas from dwarf varieties; but notwithstanding the statements made in our seed catalogues I find that the 18 in. and 24 in. varieties will grow in my strong clay two and three feet high and sometimes higher. To keep them up so that I can continue to cultivate between the rows I place builders' laths down the row about four feet apart and run a strand of binder twine down each side of the row and then tie the two strands together at each lath; having a stout stake at each end to hold it taut. As the vines grow I raise these two strands of binder twine by lifting the band at each lath, and if necessary add another two strands later on.

Sea kale is a vegetable too little known in Canada, and yet very easily grown. The best plan for cultivating it that I know of is to grow fresh roots for each winter's supply. When I dig the crown roots in the fall after frost I cut from the lateral roots the number of slips I require to set out a new bed in the spring. As the roots are about the same thickness all along it would be quite impossible to tell the top from the bottom of the root. You must make a distinction so that you will not plant them upside down in the spring. The slips are cut about six inches long. The upper end is cut off square and the lower end with a slope. and these are packed in boxes of sand, put away in a protected place for the winter. and planted early in the spring in rows twenty inches apart and about twelve inches apart in the rows. The slips are dropped into holes with a dibbler so that the crown of the root is just below the surface. These slips will develop into good strong crown roots during the summer. and when dug up in the fall are put in a cool place available during the winter. About the 15th of December a number of these crown roots are planted in boxes or pots about one inch apart. That is about as close as you can plant them. the crown being left about one inch above the surface. They are then covered with an inverted box or pot. as they must grow in the dark. All they want is a little moisture and warmth. This may be secured in your cellar near your furnace or under the benches if you have a greenhouse. In this way you can have a green vegetable that comes about between asparagus and cooked celery. served in the same way with white sauce. So soon as one set of crowns have done their part have another set coming on and throw the first lot away. This is a green vegetable that will serve you from the middle of January until May.

I find Chinese cabbage is a very useful vegetable to fill in for a second crop where I have had early peas or beans. The seed should not be sown till July. After the peas or beans have been cleared away and the soil well cultivated I sow this seed in rows two feet apart and eighteen inches apart in the rows. I place three or four seeds together at the eighteen inch spacing and when the small plants are well started I prick out all but one plant at each spacing. Chinese cabbage should not be transplanted. They should be well watered during dry weather, and kept well cultivated.

Whenever the last crop is gathered from any row I cultivate the soil thoroughly, and after August 15th I sow fall rye. This makes the garden look neat and trim for the fall, keeps down weeds, and the rye when dug under in the spring adds just so much humus. I keep sowing the rye till the end of September. In my raspberry patch I sow thickly with oats just as soon as berry picking is over. The oats add humus like the rye: but being subject to winter killing there will be no trouble with it growing in the spring as would be the case with fall rye.

This ends the story of my kitchen garden. It has been a pleasure to tell it because of the joy it has been to me to work in it.

The plans for the plots are practically as follows:—

SEPTIC TANK BED

Post	Name	Date Sown	First Crop
24 Corn	Golden Bantam	June 25	Sept. 18
60 "	"	"	"
96 "	"	June 17	Sept. 15
132 "	"	June 8	Sept. 9
168 "	"	May 28	Sept. 4
204 "	"	May 24	Aug. 21
240 "	"	Apl. 29	Aug. 1
288 Cabbage	Early Wakefield	Mch. 25	June 30
312 Onions	Ailsa Craig	Feb. 21	
330 "	"	"	
348 "	Carter's Record	"	
366 "	"	"	
384 "	Southport	"	
402 "	"	"	
420 "	Adanac	Feb. 28	
438 "	"	"	
456 "	Denia A.C.	Mch. 11	
480 Cauliflower	Snowball and Early Erfurt	Mch. 21	July 12

CLOVER BED

Post	Name	Date Sown	First Crop
24 Beets, Late	Detroit Dark Red	June 4	
28 Carrots, Early	Chantenay	Mch. 22	June 17
42 Beets, Late	Detroit Dark Red	June 4	
46 Beets, Early	" " "	Mch. 4	June 20
60 Beets, Late	" " "	June 4	
64 Spinach	Giant Flanders	May 5	June 8
78 Beets, Late	Detroit Dark Red	June 4	
82 Lettuce	Tom Thumb		
96 Parsnips	Hollow Crown	May 12	
114 "	" "	"	
138 6-in. Beans	Stringless Green Pod	June 9	Aug. 6
168 6-in. Beans	" " "	July 20	Sept. 13
198 8-in. Peas	Danby Stratagem	May 25	Aug. 6
230 8-in. Peas	Michaelmas	"	Aug. 22
262 Sea Kale			
Sundries	8 Rows 20 in. apart.		
Swiss Chard	Lucullus	Mch. 16	June 8
Cauliflower	Snowball	Mch. 29	July 18
"	Erfurt	"	"
"	Snowball	June 24	Oct. 15
"	Erfurt	"	"
"	Autumn Giant	May 11	Sept. 5
Cucumber	White Spine	May 22	Aug. 12
Vegetable Marrow	Bush	May 28	Aug. 12

MANURED BED

Post	Name	Date Sown	First Crop
24 Tomatoes	Sunrise	Mch. 21	July 20
60 "	"	"	"
96 8-in. Peas	Carter's Daisy	May 24	Aug. 3
128 "	Little Marvel	May 22	July 20
160 "	" "	May 12	July 15
192 "	Simmers First of All	Apl. 6	June 28
Chinese Cabbage		July 13	
224 8-in. Peas	Simmers First of All	Apl. 6	June 28
256 6-in. Beans	Stringless Green Pod	May 26	July 21
286 "	Ex Early Red Valentine	May 22	July 20
316 Spinach	Giant Flanders	May 5	June 8
340 Melons	Surprise	May 22, 28	Spt. 7
364 "	"	"	"
388 "	"	"	"
412 Spinach	Giant Flanders	May 5	June 8
436 6-in. Beans	Ex Early Red Valentine	May 22	July 20

J. LOCKIE WILSON: I had the pleasure of visiting Mr. Baldwin's garden and he is one of the most intensive gardeners in Ontario and knows whereof he speaks.

A MEMBER: With regard to melons, these might be grown on somewhat the same principle as the carrots, grow them in boxes, have the boxes arranged so as to slip a trowel on one side, and have about five inches of earth; plant about four inches deep. You could then plant them about the middle of April under glass, and transplant them about the middle of May. Then instead of having melons on the 7th of September you would have them about the 1st of August. You have to wet them well before you transplant.

T. H. BALDWIN: I generally get ripe melons about the 20th of August. I have tried out all methods and find that my melons from seeds grown in the open air will ripen just about as soon as from those in the boxes.

REPORT OF THE RESOLUTIONS COMMITTEE, 1921.

Moved by A. M. BRYSON, seconded by Mr. HAMILTON, "That an amendment to the Horticultural Societies Act be made permitting any rural Society, on notifying the Department annually, to hold its Annual Meeting on a date between the 24th day of October and 7th day of November. All reports and returns to be made to the Department in accordance with the dates specified in the present Act." Carried.

Moved by W. J. EVANS, seconded by J. P. JAFFRAY, "That a Standing Committee of three to be known as The Exhibition Committee be appointed. The work of this Committee to consist of arranging with the Canadian National Exhibition and the Royal Agricultural Winter Fair for exhibits of flowers, etc., from the different districts of the Ontario Horticultural Association." Carried.

Birch Tree in fine situation.

Moved by D. JAMES, seconded by Rev. W. M. McKAY, "That the Ontario Horticultural Association request our Legislators now in session to introduce a Bill for the punishment of misrepresentation and deception in the sale of such trees, scions, bushes and vines as are grown for fruit for commercial and domestic purposes; so that purchasers and growers may be protected against fraud. And that copies of this resolution be forwarded to the Premier, the Hon. Minister of Agriculture, and the Chairman of the Agricultural Committee of the House of Assembly." Carried.

Moved by J. P. JAFFRAY, seconded by W. J. EVANS, "That inasmuch as vast sums of money are being expended in the building of interurban roadways, public funds being used for the purpose, this Association deems it timely to suggest to the Government that part of this important development scheme along utilitarian and artistic lines should be the elimination of the billboard along such highways, this Association being of the opinion that defacement to the landscape by such flaunting advertising is a challenge to all lovers of our natural beauties who desire to retain these features for the people of this Province." Carried.

Moved by W. J. EVANS, seconded by J. P. JAFFRAY, "That the Board of Directors be requested to report on recasting the Districts of the Association making eighteen Districts and report the result of same to the 1922 Convention." Carried.

Moved by Miss YATES, seconded by Miss MARY SIMPSON, "That the following kindred organizations be invited to co-operate with the Ontario Horticultural Association in educational work, and that they be asked to send accredited delegates to the 1922 Convention; Canadian Florists' and Gardeners' Association, Ontario Rose Society, Ontario Pæony Society, Horticultural Branch of O. A. C. alumni." Carried.

Moved by W. B. BURGOYNE, St. Catharines, and seconded by Mr. HAMILTON, "That the Ontario Horticultural Association, in annual session assembled, representing all the Horticultural Societies of the Province, desires to express its warm appreciation to the American Gladiolus Society for its action in deciding to hold its next Annual Convention and exhibition in the City of St. Thomas, and to extend a hearty welcome to this Province, expressing also our confident belief that a great impetus will thus be given to the growing of gladioli by all our Societies." Carried.

Moved by Mr. FOUNTAIN, seconded by Miss SIMPSON, "That the Standing Committee on education prepare a list of subjects dealing with Horticultural work and the scientific principles underlying it, and that the final draft be submitted to a Department of the University of Toronto, asking for lecturers to give such information before the Branch Societies of the Horticultural Association." Carried.

Moved by A. M. BRYSON, seconded by J. A. BOTHWELL, "That this Association express their appreciation of the efforts of the St. Thomas Horticultural Society in securing for Canada the honour of having the Convention and Exhibition of the American Gladiolus Society held in St. Thomas on August 25th and 26th, 1921, this being the first occasion on which the Convention has met in this country, and that our Association donate a trophy in the nature of a cup or a medal for amateur competition at this Exhibition and that the details be left in the hands of a committee composed of the incoming Board." Carried.

Moved by C. W. WILSON, seconded by Mr. HAMILTON, "That it is in the interests of the Ontario Horticultural Societies that reports of the districts which each director represents be embodied in the Annual Report and that a small paragraph as to the duties of the directors should preface the lists." Carried.

Moved by C. W. WILSON, seconded by J. P. JAFFRAY, "That owing to the fact that a number of Societies feel that an award of merit should be granted special exhibits at the Annual Flower and other shows, it is in their interests that the Secretary of the Ontario Horticultural Association be instructed to design and have printed and for sale to all Societies, at a nominal price, a suitable certificate of merit, signed by the President and Secretary of the Ontario Horticultural Association and countersigned by the President of the local Society making the award, provided that not less than twenty Societies within a reasonable time make application for these diplomas." Carried.

Moved by Mr. EVANS, seconded by J. A. MCLAREN, "That the Directors be asked to report at this Convention next year as to re-arranging of the Districts and making provision for eighteen or twenty Directors." Carried.

Moved by Dr. BOTHWELL, seconded by J. P. JAFFRAY, "That the hearty thanks of the Convention of the Ontario Horticultural Association, now in session, be conveyed to the President and the University of Toronto authorities for their kindness in inviting the Convention to the splendid conveniences and associations of Hart House and also to those who have favoured the Convention with addresses." Carried.

Moved by J. P. JAFFRAY, seconded by W. J. EVANS, "That this Association express their appreciation of the action of the Minister of Agriculture in agreeing to our request for an improvement in the cover of our Annual Report and would respectfully request that, as in the past, the number of reports will correspond to the number of our members." Carried.

REPORT OF COMMITTEE ON DISEASED BULBS.

We, your committee instructed to look into the matter of diseased bulbs in or being imported into Canada, ask to report:

1st. We find there have been diseased bulbs, gladiolus, narcissus, hyacinth, and tulip shipped into Canada.

2nd. We recommend that the Dominion Government be asked to appoint a competent person who on request would examine any bulbs in, or being shipped into Canada, and to deal with same as conditions would warrant.

Respectfully submitted.

WM. HARTRY, Seaforth.
Dr. F. E. BENNETT, St. Thomas.
Prof. H. L. HUTT, Georgetown.
Prof. W. T. MACOUN, Ottawa.
W. E. SAUNDERS, London.

In response to a question from a member, Dr. Bennett responded that while they realized that all bulbs came under this trouble, they were not appointed to report on anything else but gladioli. He then asked for fair play for the Holland growers and others, as, he said, we are all in the same box—native, United States and Holland. The inspector is asked to inspect all our own bulbs as well as foreign ones. We all want that protection.

Mr. Kirk here remarked that of all the bulbs imported into this country none gave so much trouble as hyacinths.

He therefore moved that the request for the appointment of an Inspector cover "all bulbs." Seconded by Mr. DeLong and carried.

REPORT OF COMMITTEE ON PLANTING OF TREES AND SHRUBS ON PUBLIC STREETS.

Your Committee appointed at the last annual session to enquire into and report upon the advisability of petitioning for legislation regarding the beautification of streets and public places by sodding and planting trees, shrubs and plants and the maintenance of same, beg leave to report as follows:

1. We find that by the Statute of Ontario entitled "The Local Improvement Act" power is already conferred upon the council of any municipality to undertake as a local improvement:

(*a*) The constructing or maintaining a boulevard when a part of a street has been set apart for the purposes of a boulevard.

(*b*) The sodding any part of and planting, maintaining and caring for trees, shrubs and plants upon and in a street, lane, alley, park, square, public drive or public place or any part of them.

We find also that the cutting of grass and weeds and the trimming of trees and shrubs is similarly provided for by the same statute.

This simply means that these things may be undertaken and carried out and the cost of the same collected as taxes in the same manner as the cost of a sidewalk constructed on the local improvement or frontage plan.

It, therefore, in our opinion is unnecessary to ask for any further legislation, and we can only recommend that greater publicity be given to those laws and that our various branches be instructed with regard to the same and that applications to municipal councils in respect to these matters be encouraged and stimulated.

2. That with regard to the cutting and slashing of trees on highways, we believe that there is a great deal of misapprehension of the existing laws in this regard. As the law of Ontario now stands no person has any right to remove, cut down or injure any tree planted or growing on any highway or public place without the express permission of the council. This, however, does not apply to railway companies nor telephone companies operating under Dominion charters nor to the Hydro-Electric Commission, all of which are given rather extensive powers in those regards, but it does apply to gas and electric light companies. The principal offender in regard to the cutting and slashing of trees is, of course, the Bell Telephone Company, and it appears to us from what consideration we have been able to give this matter that as the public demands telephone service and good telephone service and as good service is interfered with by the branches of shade trees, the only practical solution lies in the removal of the telephone lines from the surface of the highways and that consideration goes to the matter of the cost of the service. This Committee does not feel that its instructions authorize it to go into that matter and we therefore only mention it so that it may, if thought advisable, be brought up for discussion.

All of which is respectfully submitted.

JOHN GLASSFORD, *Chairman.*

REPORTS OF DISTRICT DIRECTORS.

District No. 1.—Rev. Dr. A. H. Scott, F.R.H.S., Perth, Director.

A child was born to the Ontario Horticultural Association at Kemptville in 1920. Already this newest member in the District No. 1 family is able to speak, and this is Kemptville's first Horticultural utterance. You see the mother in the child by the way she dresses her doll and hums her lullaby. True to horticultural instinct this new Society acts, and sings, and gives promise of what is to be. "Gardening," "ornamental gardening," "improvement of home surroundings," "a clean-up day," "high school public library and post office beautification," "front and back lawn competitions," "compliments from outsiders on the general improvement of surroundings"—these are samples of the expressions. There is just one note that, at first, sounds discordant. The new Society at Kemptville reports an epidemic in the vicinity. But there is no discord after all, for it was an epidemic of "painting and repairing" that lasted all summer.

Twins were born to District No. 1 the year before at Iroquois and Prescott. These are two places on the St. Lawrence, the deepening and the treating of which are just now engaging the attention and skill of the world's noted engineers. The dual birth in 1919 suggests to those who are horticulturally enlightened that the membership in Iroquois and Prescott regards Horticulture as both a science and an art, and the purpose of these two Societies is to have two blades grow where but one grew before.

We need not take time to state the order of seniority among the Societies in District No. 1 at Carleton Place and Chesterville, at Morrisburg and Smith's Falls, at Westboro and Winchester. But there they are at work—some of them at one end of the area, others at the other end of the District, and the rest of them lying in between. There they are with their encouragements and their drawbacks. There they are with their failures, failures that are made stepping stones to after successes. There they are, boons and benedictions to Eastern Ontario, working away by the safe rule of experience, and showing the benefits of experience with others. They have been working on from year to year letting their light shine, magnifying the first employment of man, placing emphasis upon a service that is for the betterment and beautification of town and countryside, and lending a hand in a work that claims high-class place when we have regard for the welfare, the prosperity, and the progress of our Ontario branch of the growing Canadian household.

Merit calls for special mention of the Society in District No. 1 at Ottawa. Its membership at present is 1,536. It has had good years in the past, but perhaps none in the record excels 1920. At the Capital horticulturists have uncommon opportunities, and there they furnish capabilities for coping with uncommon requirements. The mantle of R. B. Whyte has fallen upon some worthy successors. The Government of Canada has chosen a member of the Society at Ottawa to fill a place rendered vacant on "The Ottawa Improvement Commission." The representative of His Majesty has contributed a trophy to the Society to add to the attractions of its periodic exhibitions. Four successive days at the opening of spring were set apart for short courses for all who would accept invitations to be stimulated and instructed on soil culture, planting, and ornamentation. Under the auspices of the Ottawa Society, and at a banquet prepared by its members, a street tree-planting policy for the city was inaugurated. Arrangements were entered into with the civic authorities for the keeping up of fertilizing substances which gardeners might haul away free of charge. Demonstrations on grafting and budding, exhibitions of apples, impartations bearing upon the culture of bulbs and perennials, and the conduct of a school garden club competition were parts of the Ottawa Society's programme for 1920.

Loyalty calls for a reference to one's own Society, whilst modesty leaves it to the last. Before horticulture was begun, under the present Association's auspices, there were ardent horticulturists in the historic Town of Perth. From the earliest days of settlement until now the Perth community, and communities deriving benefit therefrom, are indebted to the spirit behind the garden activities of those who preceded us in the intensive cultivation of the soil. Our membership in Perth shares in the congratulations that belong to Societies in Ontario that are growing, and that have the greatest numbers. We cannot aspire to glory.

because we could have, or do have a list of members counted by the thousand. We are of the belief that it would be an auspicious day in this good Province of ours if among our Societies estimates of worth were formed or certificates of merit were bestowed solely on the basis of counted heads, or the subscribed accumulations of an exceptional membership. Although the Perth Society was stronger in numbers in 1920 than ever before it is no keen competitor on statistical lines. It is, however, a parent organization, a mother of Societies, and, therefore, is interested in the family of Societies within and beyond our Provincial bounds. Because of the situation in Perth the Government of Canada and the Canadian Pacific Railway Company are two esteemed associates of ours in operating the areas that call for skilful horticultural activities. The former is to be credited with highly appreciated expenditures on our canal banks and bridges, and the latter with a recent layout and planting, that are in horticultural keeping with the greatest organization of its kind in the world. Company and individual enterprise have converted, in recent years, spots where nettles grew and thistles thrived, into veritable paradises. Gardens that have been inherited, and elms that have been growing for a century are some of Perth's attractions, whilst the spirit and purpose of the Ontario Horticultural Association keep us going on with the delving and planting, the cultivating and the making of vistas that we may have a place alongside of you and yours in promulgating the gospel of horticulture in this Canadian realm.

View of St. Catharines' Civic Rose Garden, showing some of the pergolas.

Acknowledging the attractiveness and worth of other portions of this fair Province, as well as our own, what an area of horticultural opportunity lies to view in District No. 1! In this part of Ontario where the Rivers Ottawa and St. Lawrence border the area at one end of which they prepare to join on their way to the sea, you have a valley with soil and scenery as choice as the continent can furnish. A pioneer settlement in the Province, peopled by a sturdy stock, inbred with the spirit of United Empire Loyalism, the furnishing place for kilted and khaki battalions that gave themselves to the war, to die that we might live, retaining an influential community that believes in the old flag, the old gospel, and old heroes, rising into newness of life through fresh impetus toward the soil. I know of no finer spot on earth for the development of those garden passions that possess the highest type of the true Canadian. Many are looking for light and leading in this honoured sphere of service from men and women who come together in society and associations to give dignity to the horticultural calling, and unless I misinterpret the spirit of the people belonging to the portion of Ontario where I am partner in service, District No. 1 desires to co-operate with all those in this favoured Province of the Dominion who bring vim and vision into an activity which, from the time that the Lord gave the first gardener to Eden, the cultured have regarded as the most useful, the most healthful, and the most historic occupation of man.

District No. 2.—H. A. Middleton, Lindsay, Director.

I think I can truthfully say that we are holding our own at least. Since we met last, Trenton has developed a new Horticultural Society. Our President, Mr. Baker, and myself attended an organization meeting there, with the result that they now have a good healthy Society going strong. This Society held a fair last fall that was really wonderful and reflected credit on its officers.

I also assisted Hastings in forming a Society that has a good membership, with excellent officers.

Several more places are soon to have a Society of their own in this District, which will come in due time I hope.

District No. 3.—Chas. W. Wilson, Fort William, Director.

In making my report of the work accomplished in District No. 3 during the past year, as far as I can learn, every Society is in a thriving state and looks forward to a good season ahead.

Owing to my appointment as director, late in the year, and having never attended a convention of the Association, I was not familiar with the work that was expected of me. Next year if I am favoured with the appointment I can assure you that I will be able to give a good account of my office.

As far as my own Society (Fort William) was concerned we had the most successful year in our history. I have also arranged to organize a new Society in Port Arthur in April next.

District No. 4.—J. S. Wallace, Toronto, Director.

The members of the Horticultural Societies in District No. 4 have enjoyed a splendid year with much helpful work accomplished and bumper crops of vegetables, fruit and flowers everywhere.

The Toronto Society carried out an extensive programme of work with children's gardens and through the year enjoyed their usual full list of shows and lectures.

The Riverdale Society's energetic membership had a very busy season with vacant lot and children's gardens in addition to their own, and staged a keenly contested competition for prizes given for "best front lawn and back garden." The officers are now planning on a campaign for one thousand members this year.

The High Park Society held two flower shows and both were very successful affairs. A fine showing of roses was made with pæonies, etc., at the June show and the late August Exhibition had a choice display of gladioli and asters with perennials. The membership has reached the 500 mark. Much interest was taken in the lawn and garden competition and prizes were given in two classes, one class for gardens only and one for lawn and garden together.

Aurora Horticultural Society report an increase of over one hundred per cent. in membership during 1920—valuable help to this end being given by the use of options to members. The third year with school gardens was very successful —more than ninety children competing for the prizes. The usual lectures and shows were well attended and much enjoyed.

In Port Credit the local Society held two fine shows—a Rose Show in June and the annual Fall Show for vegetables, flowers, fruit and poultry and both were well patronized by both the exhibitors and the general public. The Rose Show was such a success it is hoped to make it a permanent affair. Three well attended lectures were given during the season and the outlook for 1921 is very promising.

Richmond Hill increased its membership to ninety-seven. In the spring school children were supplied flower and vegetable seeds and tomato plants and there was an excellent exhibit from same at the fall exhibition. Maple trees of different varieties with the names attached were planted on the High School grounds.

Weston reports: In addition to the usual routine work of the Society, we secured a plan of suggested ideas for developing the natural park areas in the Humber River Valley adjoining the Town Park.

Over $500 was spent in planting 175 Norway maples and 163 elms as memorial trees. Of these, 88 elms were planted in the park, and 30 on Elm Street.

Our membership canvass was made by thirty school girls ably directed by a committee of leading business men. Our abnormal membership in 1919 was the outcome of timely patriotic options that were widely taken and among other things substantially aided the R. H. S. Fund for replanting the war devastated orchards of France and Belgium. With a return to normal, our membership of 851 in a total population of 2,600 is a remarkable achievement. In addition to the usual premiums, community service options were provided for help to decorate public and church grounds, for memorial trees, and for the juvenile community garden work. Vegetable seeds were bought in bulk, packaged by a volunteer committee, and supplied at a reduced cost to members.

Our juvenile work, under the direction of Rev. W. M. MacKay, 2nd Vice-President of the O.H.A., was an outstanding feature.

A rally of school children opened the season. Only one piece of ground was available in which 27 school children community gardeners had plots—the seniors 20 ft. by 20 ft., intermediates 20 ft. by 15 ft., and juniors 20 ft. by 10 ft. Their work was judged on points three times during the season by three different judges to assure impartiality. In addition, many had home gardens. Seeds were supplied free to all, a total of 167 juveniles. At the annual show 24 of the 27 community gardeners exhibited and about 75 of the home gardeners. About 300 individual entries being made by the juveniles. For this, the plots and competitions, prizes totalling $90 were given.

It is hoped that much more ground can be secured for the coming season to accommodate most of the school pupils of suitable age.

The Society maintained a display in the competition with other Societies at the Canadian National Exhibition and was awarded the first prize.

District No. 6.—J. A. Magee, Director.

The work seems to be prospering, as new Societies are springing up even in the small villages and rural districts. Apparently the chief obstacle is human selfishness, or in less blunt terms, lack of healthy public spirit of common good for the great masses. Each member seems, in the majority of cases, to feel that the sum total of his duty to the Society is to get as much material value for his membership fee as possible and let the matter drop there until again approached for the next year's fee. Fortunately, there are at least a few in each community to look beyond the narrow limits of their own particular little concern to see the need and opportunities for general public improvements in the community.

Owen Sound reports good work done among the school children, resulting in a substantial grant from the Board of Education and also a good Flower and Vegetable Show. For the new year they are seeking to co-operate with the City Council in the conversion of garbage into fertilizer.

The work done in Goderich has induced the Library Board to instal a Horticultural Section of about 40 volumes which are loaned to members free.

Wiarton reports a very successful year in which trees were planted, parks improved by addition of tables and seats, a good Flower Show put on, and prizes were given for best lawns, besides the usual distribution of premiums. This is one of the young societies which is open to suggestions.

Walkerton also reports success and interest in their work among the school children, the Flower Show and Flower and Lawn Competitions. They are working along a plan for beautifying the library grounds and those of the C.P.R. station grounds made by Mr. Tomlinson.

It is needless to report on the work of Seaforth Society when they have such a townsman as Mr. Hartry, one of the active members.

The Village of Walton with a population of about 150 organized a Society in April, 1920, with a membership of 112. This is close to the record, I imagine. They supplied window boxes for three business places, planted a number of trees and ran a Flower Show in September in connection with the School Fair. They also held a social which proved an advantageous attraction.

Hanover Society is running along much the same as formerly, working to arouse the interest of each resident in his own place and the town at large and to educate that interest.

Chesley organized last spring and shows a promise of being heard from in the near future, having among their members most of the better class of citizens who are animated by a desire to have their town second to none.

District No. 7.—L. Norman, Galt, Director.

District No. 7 has made considerable progress during 1920. It has now a membership of about 4,100 divided among 13 Societies—an increase of 500 members and two Societies; the membership is about equally divided among the three counties in the District, Brant, Waterloo, and Wellington.

Of the three counties Wellington stands first in the matter of individual Societies. Guelph is the banner Society of the district, not only in the number of members—over 1,000—but also in regard to its varied activities. It is to be commended on the large amount spent for premiums given to its members and the relatively small amount paid out for exhibition prizes. It believes in the greatest good to the greatest number. Another Wellington Society—Elora—is first in the progress made during the year. Its membership is now over 250, an increase of more than 150 per cent., and it has shown great progressiveness in other respects.

While Brant has only two Societies, Brantford and Paris, both are very strong and active; the first has a membership of nearly 900, and the second, of nearly 500. Both are doing splendid work, not only in the ordinary lines of horticultural activity, but especially in the encouragement of junior members. They realize that their continued prosperity depends upon the interest of the rising generation.

Perennial border, with background of pines.

Waterloo County is first in the number of Societies. Every one of its eight urban municipalities has now an active Society, Ayr and Preston having been added during the past year. Kitchener and Galt have an enrolment respectively of over 500 and over 400 each: an increase of about 100. Both have specialized in the matter of civic improvement.

The other six Societies in Waterloo, and the third Society in Wellington, Fergus, have each a membership in the neighbourhood of 100; they are all doing good work.

Most of the Societies held exhibitions in the fall, while a number held seasonal shows. The amount given as prizes at these was somewhat over $1,000. The total amount expended for premiums given to members was about $3,200, of which Guelph contributed considerably over one-third.

District No. 8.—Dr. F. E. Bennett, Director.

I had the pleasure of visiting many Societies in the District and also in other parts of the Province, sometimes in the capacity of organizer and other times in lecturing. Visits were paid and illustrated addresses given in Brampton, Delhi, Durham, Georgetown, Guelph, Leamington, London, Owen Sound, Palmerston, Port Stanley, Ridgetown, Otterville, Strathroy, Tillsonburg, St. Mary's, Watford, Plattsville, Walton, Seaforth and Norwich, and many others aided by extensive correspondence. There seems to be a great awakening to horticulture, and municipalities everywhere are asking for aid in developing the movement. Municipal councils, chambers of commerce and boards of education in many cities and towns are beginning to realize the importance of the subject.

Several Societies did not reply to my inquiry for a short report as to progress or otherwise in 1920, but those who did as a rule report progress. Tillsonburg gained splendidly in both membership and expenditure, so did Woodstock. London fell behind in membership, but in expenditure, work accomplished and enthusiasm displayed they were most progressive. West Lorne, a new Society, started some practical clean-ups and is bound to succeed. Otterville, a little cross-road town, had 106 members and spent $274 in practical beautification, Aylmer had its banner year, spending $1,165, and determined to do greater things in 1921, Dutton gives a corresponding report and is a hustling Society; Strathroy, a pioneer Society, organized 44 years ago, shows a membership of 319 with expenditures of $470. Rodney's new Society with 100 members, spent $355, considerable of this amount being invested in public work. Ingersoll went behind slightly in membership, but spent an increased amount and is doing splendid work. The St. Thomas Society does not report as large a membership, not due to lack of interest, but to being swamped with work along other lines, over $17,000 having been expended, an increase over 1919 of several thousands. The outstanding features of the year's work are the issuing of the pictorial envelopes, the engaging of a landscape gardener, exhibits of gladioli at Boston and Toronto and the securing of the Ontario Pæony Society's Convention and Exhibition in June and the American Gladiolus Society in August.

District No. 9.—John Glassford, Director.

I find from either a personal visit or from conversation with the secretaries of the several Societies, that all are in a healthy condition, and bid fair to progress for 1921. Bothwell, Dresden, Kingsville, Leamington, Ridgetown, Rodney and Tilbury will work along practically the same lines as most other Societies do, in the planting out of beds, shrubs, trees, etc.

The other Societies in the District, Blenheim, Chatham, Essex, Sarnia, Walkerville. Wallaceburg and Wheatley, have diverted somewhat from the beaten path usually followed by Societies.

Sarnia has adjacent to the city a small lake, which at one time was frequented by innumerable ducks. These, however, have been killed off by game hogs. Mr. Geo. Wenino told me that a scheme was on foot to repopulate this lake and make it into a game preserve and park, and that Mr. J. Miner, of Kingsville, has promised to assist them in this undertaking. He also assured me that Sarnia's Mayor was very enthusiastic along horticultural lines, and was doing everything he could to assist them in their work of beautification.

Blenheim is now engaged in canvassing for members for 1921. They consider citizens' civic pride should be at least worth $1.00. Therefore, they are not giving any options at all, but will supply any member with everything at cost. This, they say, will eliminate the unpleasantness that most Societies experience in members being dissatisfied with their options.

The line of work of the Essex Society this season will be the planting of shade trees along every street in the town. Two lots practically in the centre of the town have been used by the Society to some extent for flowers and bulbs. They had expected the town to donate the lots for a small park, but the scheme has fallen through.

Walkerville is in a very optimistic mood, having closed the year with $200 to the good. They paid special attention to gladioli and roses, but the roses turned out a failure.

Their objective in members for this year is 1,000, these they hope to secure by co-operation with the Girl Guides.

Their town has increased in population from 3,000 in 1914 to 7,000 in 1920. All their alleys are paved, and washed and cleaned three times each week. There are no poles along the streets; and all telephone and telegraph wires are buried. All streets are lined with shade trees, and well kept.

Wallaceburg has been using a triangular plot about a fifth of an acre in the centre of the town as a beauty spot. The owner, Mr. Jas. Steinhoff, has recently deeded it to the town for a permanent flower plot. They have a number of large urns throughout the town. Their plan of work has been to let the entire contract of all flower beds and their maintenance to a florist, who looks after everything. Wallaceburg is to be congratulated on having a florist in the person of Mr. Cruthers.

Wheatley is handicapped in not having a water supply, only wells to draw from, and none too many of these. It means that they cannot plant out flowers and make beds along the streets, and expect results, without water. However, Mrs. Dr. Leader, their secretary, has a most beautiful garden of roses and other flowers, altogether the work of her own hands.

In conclusion, in Chatham, the one feature we have adopted this year is, every street has a captain or chairman, and long streets have two, whose duty it will be to secure all members on the street, and to be responsible for all improvements and the upkeep.

Our city council in order to give employment to the unemployed, engaged several gangs of men with saws and axes to cut down and make into firewood supposed dead trees along the streets, without an overseer, the result being that many trees without a blemish were cut down. We called a meeting of the executive at once, to try to stop the vandalism, but the work of destruction is not yet altogether stopped.

OUR CAUSE IN TOWN AND COUNTRY.

J. P. Jaffray, Galt.

Our cause in town and country is that of the whole of this Province. We recognize the fact that horticultural activities are increasing. I was connected with the Association some eleven years ago, attended all the annual meetings up to the time I left for Philadelphia, but even during my absence I kept up my interest, and was glad to see that we were pursuing the same course as the pioneers of the Society laid out.

In respect to activities in vacant lot cultivation, after some discussion about it nine years ago, this Association secured the very best data on the cultivation of vacant garden lots and spread it through circulars among members. When the war came on we had, through our efforts, educated amateur gardeners in the cultivation of vegetables especially, so that when the war did occur the vacant lots in Galt were manned by about 250 amateur gardeners, who produced enough vegetables for themselves and their neighbours in the Town of Galt.

Our ideal is to conserve what we have and to obtain the very best possible advantages by progressive legislation and by progressive movements. When this Government of ours get through with their road building scheme, we are bound to have in the Province of Ontario an ideal tourists' paradise. We horticulturists and civic improvers will join with the Government in making it such. When you imagine and think of the amount of money that can be circulated by tourists in this country you will recognize that we are behind a movement that is of money value every minute of the year. Every winter we lose thousands of our citizens who go to California. California has been made a winter resort by publicity, and they are wealthier to-day by hundreds of millions because of its value as a winter resort.

We want to make Ontario the same for the summer time, and we can do it if we put our mind to it. While I was Dominion Government Agent in Philadelphia, hundreds and thousands of American tourists came through to Muskoka, from Pittsburg, Philadelphia and New York. Eventually a number of them took cottages. If we can continue this good work, these millions acquired from Americans will help to bring down that obnoxious exchange rate. You have right on your border line, States like Ohio, Pennsylvania and New York, with a combined population of 35,000,000, and further south several States with a further population of 50,000,000. Now, we have all this population to draw from as tourists for Canada, after we get our good roads programme completed. We want the city man, the town man and the country man to combine to make this Province an ideal summer resort for the man of wealth in the neighbouring republic.

I speak of a combination between the rural parts and the urban parts—the line of demarcation between the rural and the urban parts is dissolving. We all know that the farmer, his wife and daughter and sons are becoming interested in horticulture, and are looking to the city man and the town man to help them along in progressive work. This objective of 50,000 members in five years is within your range. It all lies in the hands of your Society. With the optimism and work of each individual in his or her Society we can accomplish our objective. During the last ten years we have made remarkable progress, we have got at the heart of the Ontario horticulturist and we are enabling him to spread the gospel where we can., This gospel can be spread among your councils, in your Kiwanis and Rotary Clubs, through the Women's Institutes. Even in coming from church, after criticizing the sermon, you can spread this gospel. The only way to achieve a thing is to work for it, and by working individually and collectively we will get to our goal, which would be that the Government of this Province will recognize this as a tremendous agency for the beautification of Ontario. No Government, and no minister, ever had a more enthusiastic membership of any Society working for him, than this Government has in the Ontario Horticultural Societies.

A. A. Young, Barrie: In order to beautify Ontario we must multiply the Horticultural Societies. I believe it would pay the Societies to get an organizer.

It would not cost a great deal. I recently had a letter from a lady in Brantford asking for membership in our Horticultural Society. I accepted her dollar. I had another letter from near Creemore. I suggested that she organize a Society there. She is already seeking to get in communication with our Superintendent I am an advocate of the idea of beautifying Ontario and the best way to do it is through the agency of this Association.

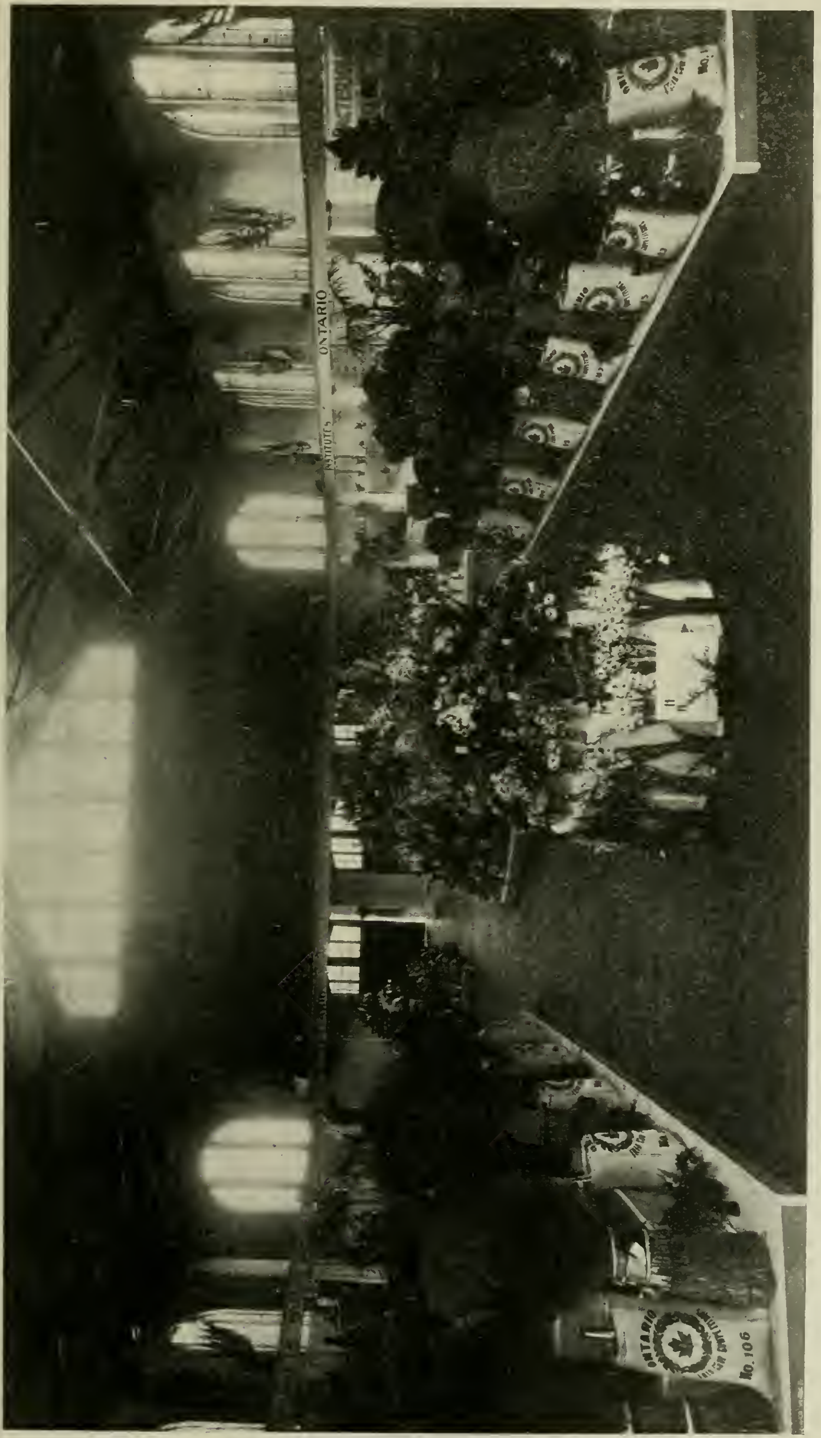
Dr. J. E. Bennett: I am glad this subject came up. We are growing fast, and I see municipalities on all sides waiting for somebody to ask them to organize In the Town of St. Mary's, a short a time ago they had not taken any definite action. I knew the editor of the paper very well. I wrote him a letter, telling him what a beautiful town I thought they had from what I saw of it as I passed through, and viewed it from the railroad. I suggested to him that they organize. You would be surprised at the interest that the citizens of that town took in that suggestion—men who had the real interest of their town at heart, who realized the benefit of it, just waiting for a little encouragement to start them on the road. We held a meeting, and upon asking those to stand up who wished to organize they almost to a unit stood up. The same thing happened in Watford less than a month ago. One man said, "Put me down for $20;" another one said, "Put me down for $10," and his wife, not to be beaten, said: "Put me down for $10, too."

W. A. Brownlee, Grimsby: I am very much in accord with what Mr. Jaffray has said with regard to the influence we have and the possibilities that are ahead of us. I know of one instance where a Society was formed in a district and the district representative was not aware of it. Let the district representative be responsible for his district, let it be his duty to canvass every city and town in that district, and see that every village and town has a Horticultural Society, then let the representative of that district present his report to this meeting and tell us at the annual meeting what has been done with regard to the advancement of horticulture in his district.

Our President is here to-day, and I know well what he has done to increase our membership. He is a fruit farmer, but in addition to that he has the whole front of his place beautified with pæonies, roses, gladioli, dahlias, and almost everything you can imagine in the way of flowers. If every one of us would take this matter to heart we could do a great deal towards the improvement of our land, and of our native Province. Let us take a pride not only in our own district but in the Province as a whole. Let us back this Association in our own local Societies.

The election of officers resulted as on page 6.

H. A. Middleton: In our Society we have not reached anything like the point that Dr. Bennett has, but we are getting members. One lady put forth a herculean effort and secured 109 members to start off their Society. Mr. Baker and I visited her town, and they were quite enthusiastic. But a change in officers occurred and they went back and back until they had only fifty members. This convention is here for the very purpose of giving the information to those representatives of how to carry on. Those pictures we saw yesterday, and were glad to look at—I do not suppose there is any one in the Province except Miss Blacklock who has anything like that. What we want is the real marrow of how to get along. A few miles away the Secretary of a Society which has been organized for years asked us to help them. I am director of this district and it reflects on me. Am I supposed to go down there and charge up my expenses? I have asked



Section of Ontario Government Exhibit, showing Hamilton Horticultural Society's floral display in the foreground.

several directors and they do not know. Any place I have gone to I have gone to on my own business and given an hour or two's time to the Horticultural Society. But on the other hand, what about this little weak Society that we want, which is to help make up the 50,000 membership. How are we going to help these Societies along which go backward?

H. L. Hutt: I sympathize with the struggling Horticultural Society, as I have travelled about lecturing and assisting them, and it has struck me that one thing which might be helpful would be if the Secretary made this a clearing house for all of them in the way of distributing the publications which every Society gets out. You know St. Thomas gets out a fine book. Guelph gets out another one, and probably some little town near-by has no publication at all. Before we organized in Georgetown I wrote to Societies which were long organized asking them for their publications, found that none of the neighbouring Societies issued anything in the way of a circular. It should be the duty of every Secretary to send a copy of their publication to every other Society in the Province. It would give the others an idea of what everybody is doing, and in that way be a clearing house for all deliberations of each Society in the Province. It only means a little bit in the way of postage and extra copies published, but it would mean a good deal to some Societies.

Moved by J. M. Pearen, seconded by T. D. Dockray: "Resolved that this convention is of the opinion that the holding of an Annual Floral Memorial Service to commemorate our fallen heroes is most desirable, and recommend that each Horticultural Society in this Province hold such a service on the last Sunday of June, or on the Sunday immediately preceding our National holiday."

J. M. Pearen: It is important that this organization should not forget what our fallen heroes have done for us. We have held such a service in the Town of Weston. The Horticultural Society announced that they would receive donations of flowers on Saturday afternoon, and that these flowers would be arranged in the public park. A large platform was built and a massed choir of all the churches of the city was arranged to give the musical programme. We had also a band and the chaplain of the district addressed the crowd. We had something over 3,000 people gathered there. It was one of the most successful undertakings of our Horticultural Society, and I believe it is a move that would appeal to all the people in our community. It would enlist the sympathies of the rising generation, and our returned men who would realize that the Horticultural Society had a place for our fallen heroes and recognized it.

The motion was then carried.

Mr. Davidson here brought up the matter of publicity, saying: Not enough press publicity is given. It would be well if something could be prepared to take home with us, as the official report does not come until planting time. This organization should have an official organ or arrange that there shall be in every district under its jurisdiction an annual meeting held under the direction of the district representative appointed by this Association. It is my intention to introduce a notice of motion to be tabled for the next session, whereby this district meeting can be authorized by the Ontario Association.

Then there is also the distribution of literature. If we had it in sheet, pamphlet or any other kind of form—say it is on gladioli, pæonies, etc., any person who takes an interest along that particular line could refer to it.

Mr. Davidson then also suggested that at the end of each session some means should be devised whereby the delegates could be given a sheet or two of condensed matter of the proceedings of that day's business.

T. D. DOCKRAY: I can assure Mr. Davidson that there is no reason in the world why a district representative should not corner his Horticultural Societies up any place he likes, and get them to do anything that he wants to, and then come here and tell us what they have done. Formerly there were district directors' reports read here and published, and in those reports the district directors stated what they were doing, and what they could do.

As to the point of more publicity to our work and the work of the Horticultural Societies, I can assure you that the three great morning dailies of Toronto will publish anything that your Horticultural Societies may send to them at any time.

DR. BENNETT then told of the scheme the St. Thomas Society had worked out of issuing envelopes, the envelopes were printed with boulevards, etc., on them of St. Thomas. The business men of St. Thomas, he said, bought them. The whole series of 300,000 was taken he said, but for the lack of paper they could not complete the whole series. Now they are sending out another issue of 500,000.

Someone spoke about the option of premium books. That premium book will cost us $700 for 2.500. We hope to have 2,500 members this year and we want a copy for every member. The expenses of these in smaller Societies would be prohibitive, because it is a matter of getting ads.—we have over $900 worth of ads. in, so that the book is really a gift of $200.

We appointed a landscape gardener—we pay him $1,800, to supervise the work of the Society, and to act in an advisory capacity, even with tulip beds, we furnish them with a sketch so that the work may be gotten out in a systematic manner.

THE CHAIRMAN: It should be the duty of every director and of every delegate of every Society in the Province to bring the benefit of horticultural work before every member of the Province. Through our districts we have Members of Parliament, and it should be the duty of directors to see that that Member of Parliament should be well acquainted with the merits of this work. I believe the work of the Horticultural Societies in the Province of Ontario lessens the cost to the Province of Ontario in the administration of justice two or three times the cost of the grant we are now getting.

REV. MR. HAMILTON, St. Catharines: I am interested in boys and birds and botany. To interest my boys in bird houses, I went to our Poultry Association, and I said: "We want you to give us a place and our boys will give an exhibition in your show, and they did. We made a fine display. People came along and said: "Why this is horticultural work."

Mr. Burgoyne asked me to come to the annual meeting of the Horticultural Society in that city, and I told them about my work. The Horticultural Society took it up and they gave us a place on their programme and prize list, and my boys made an exhibit last year. There was just one bird house outside of my boys' club. We made an exhibit, and that table of bird houses attracted more attention than the best roses in the show. It was written up and given a prominent place in the paper. I am not a Jack Miner, but I helped to bring Jack Miner up to where he is to-day. I think by adding up this idea to your annual show you will add interest to the work.

W. B. BURGOYNE: I endorse all that the Rev. Mr. Hamilton has said, and he could have gone farther in telling about the result of what the boys are doing in St. Catharines, how the work is spreading.

Mr. Davidson then advocated using prisoners for the work of beautifying our parks and streets adjacent to county towns. He gave his own experience in this connection for fifteen years and said he had had splendid results. That in only two instances had men attempted to escape, and one of them was an imbecile.

An Elora and Salem Member: In regard to the preservation of bird life: Last year we decided to take up the bird house plan and went into it, not expecting too much. The result was more than satisfactory. When the boys started, we gave them some time before we asked for the houses. We thought we had better show the houses, so we asked a merchant for a store window, but when the time came no store window could hold anything like the number of houses the boys had, so we took the Public Library Assembly Room and had our exhibit there. There were 83 houses. We had the room arranged and a little scene at the back to act as a landscape. We awarded fifteen prizes in all. In Elora we have a bird enthusiast. Rev. Mr. MacDonald, of Knox Church. We talked of doing something that would be really worth while to preserve bird life. Any one who has been up there knows what a beautiful valley the Grand River runs through and we plan to have this valley reserved as a bird sanctuary. If we in Elora should take this thing up seriously, would we have the backing of the Ontario Horticultural Society? We would not ask for money, just for your co-operation.

OBJECTS OF THE BOTANIC GARDEN.

Prof. Thomson, Toronto.

I keenly appreciate the interest that the Ontario Horticultural Association is taking in the project of the Botanic Garden, and with their support I feel assured that the project will carry through. If it does not this year, it will the next. We are getting out a little booklet of six or seven pages—just to describe the work that we hope to carry on, so that the people who are interested in the project may all work in unison and not have any wrong ideas in regard to it. Not that we do not want everybody's idea in it, for we are anxious to get every idea that we can in any way that will be helpful for the scheme.

Objects.—The first of these is the conservation and utilization in the public interest, of one of the naturally beautiful areas in or near Toronto by the creation of a Botanic Garden, "Where the scientist may revel in botanical wonders, while the layman revels in its beauties."

Now, I want to know, first, from this Society, whether or not they are in favour of that Botanic Garden in the neighbourhood of Toronto and its association with the University, because certain persons have stated that they think it should go farther out. If this Association will state whether they appreciate its close connection with the University, I should be very glad. It would help us. We are not hoping or wanting to make this an institution for Toronto, only it must be near some centre, and it seems to me that where you have a large population and people coming in for other purposes, you have the centre of the Province for that purpose. On this account it seems to me that Toronto would be the proper place for this Botanic Garden. We are not going to keep it in Toronto alone, because the original plan has always been that Toronto should act as a distributing centre for every part of this Province that wants an educational park, and is willing to keep the material that we send labelled. We will send out to local centres a few samples of the same material that we keep for our educational purposes in the main garden. This will extend the educational influence by spreading our material over the Province. Probably the High School Science Master would be the one who would be in charge locally in connection with the park system.

The next heading is: The extension of the confines of knowledge in Botany and the related applied arts, especially Horticulture and Landscape Gardening. That is, facilities will be afforded for research work in botany, as they are, for example, in chemistry. When the chemist wants to perform an experiment, he does not have to stop in the middle of that experiment and send over to China for the chemical he needs. We want to have all plants on hand that are required for use. Do not think that this is going to be an enormous expense for nothing, because in learning to keep these plants you will train gardeners. That is one necessity that everyone interested in horticulture realizes—the need of the training of gardeners. The Dominion of Canada cannot engage in education because that duty is allocated to the Provinces by the Constitution.

Pergola covered with grape vines.

With regard to landscape gardening, we have conceived this idea. There is no definite place to-day where we can go and see a building landscaped in the way it should be and get information on it. Why not landscape your main building as a model and label your material, so that any man can come along and see how it is done? Also landscape and label the houses of your directors, your officers, and the men who are on the grounds. Let each be responsible for the men who are on the grounds. Let each be responsible for his own gardens, and have them open for the inspection of everyone, so that anyone can come and see and learn. The man who is living there will take a vital interest in showing them. That is going to work quietly and be of enormous value throughout the country.

The next thing: Education along botanical, Horticultural and landscape lines, including provision for the training of scientific men and gardeners.

Lectures on landscape are being given in the University of Toronto, and we are hoping to have a regular Chair for Landscape Architecture in our University the same as in many other universities.

The next heading says: The preservation of our Canadian flora, and the development of its horticultural possibilities. Professor Tomlinson spoke of this last night. We want our share in it too. There is no danger of us running contra to each other because there is so much to do. If one man specializes on one thing, others can specialize on another. We should utilize our own flora more instead of allowing the British and others to come in and take our specimens, convert them for their own uses, and then bring them in to us again and adapt them to our climate.

Next—the maintenance of collections of horticultural plants, and also of poisonous, drug and fibre plants and of other plants of industrial importance. The investigation of these and distribution of information with regard to them.

That is where I scored when I went to the Manufacturers' Association. They see it is going to be a valuable thing, from the industrial standpoint, and are giving valuable support to the project.

In addition to our own Canadian flora we should have foreign plants introduced, especially those that are helpful in industry and in plant breeding. We have a nursery started up the Humber with seed procured from Kew, Edinburgh and the Arnold Arboretum. The University is paying for it. We have taken that initial step so that when the site is chosen we shall not have to wait too long to get started.

That is practically all; but I want to emphasize that we do not wish to overlap any other institution in any way, but to have the garden connected with the University assures adequate scope for its educational side. We should like to have facilities for our own students, so that when they go out they will be better prepared for carrying on their work as teachers. We want to make the garden a centre where horticulture for Ontario can find a home, where this organization will meet in the main building, where the Rose Society will have its offices, where we can make a home for the study of horticulture and botany.

Moved by W. B. Burgoyne, seconded by Rev. W. M. McKay, "That this body put itself on record as approving of the outline of the Botanic Garden as given by Prof. Thomson."

A long discussion ensued in which every member speaking endorsed the idea of having a Botanic Garden for the Province. The general opinion also was that it was desirable to have the proposed gardens in or near Toronto, as near to the University as could be, every other thing considered.

HORTICULTURAL ODDS AND ENDS.

J. E. Maybee, Port Credit.

It is now some seven or eight years since I became infected with the back to the land germ and acquired a house and some three acres of land at Port Credit. I must admit that I was somewhat verdant at that time and hardly knew enough of matters rural to be able to distinguish a crow from a crocus, or "sparrowgrass" from chickweed. I had practical experience enough of poultry, however, to know that the hen represented the laity and that it was the mission of the male bird to enter the ministry, when the local parson stayed for dinner.

Nothing daunted, however, I plunged in, planted trees and shrubs, and laid out a kitchen garden, lawn and flower borders, all according to my own ideas based on observation and reading and guided as to choice of material by a nursery agent of some taste and knowledge. The results were possible and at least I achieved certain more or less desirable results at a minimum of expense. Further, urged by the housewife, I purchased some White Wyandotte eggs from the Methodist minister, borrowed a brood hen and raised twelve chicks from thirteen eggs, a result I have not since beaten. The majority were pullets and began to lay on December 3rd, continuing all winter. In fact, the colder it got that winter the better those pullets laid. That same winter an old time farmer, just up the road, was providing free board and lodging to a lot of dilettante barnyard fowl who had evidently become infected with the "race suicide" idea.

The garden prospered more or less, and by the time it had entered into its second year the Port Credit Horticultural Society was formed, mainly owing to the activities of Miss Yates, who was fortunate enough, or shall I say shrewd enough, to find some excellent helpers.

We, that is self and part of family, joined the Society and took part in its activities. That fall the Society held a show on the grounds of Mr. A. M. Hobberlin, and all the little amateurs, the big amateurs and the big amateurs' professional gardeners sent in exhibits. In my own garden we had but few flowers, but our vegetables looked fair and just to help to fill up the show tables, and make a good exhibition, we entered an exhibit of ten varieties of vegetables, quite unaware that the class was an open one in which the professional gardeners were exhibiting. To our great surprise our exhibit took the bronze medal being beaten for the silver medal by an expert professional and only by a margin of a few points. There was a great deal of luck about that, as we had little knowledge of the qualities a judge would look for in the various items of the exhibit nor of the proper way to prepare and stage an exhibit. Now, I have not mentioned these personal matters because there was anything remarkable in the performance, but merely to bring out the point that any average city man can go out into the suburbs or the country, and by using such brains as he has, quickly acquire a creditable degree of efficiency in the management of a garden, and in the creation of beauty in the home surroundings. Indeed, in our district the amateur has in many instances been able to show the old timer a few things, the value of fruit tree spraying, for example. Here let me express my gratitude to the Departments of Agriculture of both of our Province and of the Dominion for the splendid bulletins which they issue and for the very valuable experimental work done at Ottawa and Guelph which is embodied in those blue covered reports. I have found them of the greatest service.

The next step in "The Rake's Progress"—it is, of course, the garden rake I have in mind—was my appointment as a delegate to the first convention of the Ontario Horticultural Association which occurred after our local Society was formed. I came and entered the hall among all the horticultural big bugs with much the same feelings that Daniel must have experienced when he entered the lions' den, or, as perhaps an horticultural simile is more appropriate, I may say I felt as much at home as a modest violet in a bed of sunflowers. This feeling was much heightened when I heard the late Mr. Whyte of Ottawa talking about the 250 varieties of gooseberries he had growing in his garden and I remembered the two or three specimens of one variety which were growing in mine. I soon found, however, that these horticultural enthusiasts were pleasant people to meet and that not only were they willing to pass on anything they knew but were quite willing to listen patiently to any tyro who might imagine he had any idea to impart which might, by any possibility, be of value. Quite cheerfully, therefore, I acceded to the official request to say something to this Association of the lessons learned from our work at Port Credit.

First, we learned to our sorrow that a reputation as an expert floriculturist is not always the best recommendation a man may have for the post of secretary. Look for business qualifications every time. The most reliable secretary the Port Credit Society has had was a man whose practical relationship to horticulture may perhaps best be understood by careful consideration of the case of the politician who "had religion," as the old expression goes, but, for practical reasons, put it all in his wife's name.

The formation of an active and efficient directorate in a small community is not easy. It is difficult to get as officers enthusiasts who can give liberally of their leisure time for the good of the cause. The work has to be done by busy men who can spare but a small portion of their scanty leisure for the Society's welfare.

The greatest asset to any society is to have among its officers at least one man who is well known and liked and who is closely in touch with the people every day. The city man living in the country, unless he has plenty of leisure, is considerably handicapped.

One of the problems of such a community as Port Credit and its vicinity is to secure the interest and co-operation of the village people. This year we hope to make greater progress in this direction as a local business man has recently become quite enthusiastic. Some measure of success we have attained as eighteen out of the thirty-four exhibitors at the last fall fair were from within the village limits.

But what we want to gather from this present convention is how to get, to a greater extent than at present, the interest of the wage earner with a small garden. For though I am quite prepared to admit, democratically, that one man is as good as another, and sometimes better, it cannot be gainsaid that we are divided into classes and the village inhabitant with the small home does not always display the sporting instinct and public spirit of the man who has taken up suburban life for the sake of indulging his love of growing things.

For the encouragement of the man with a "one talent" garden be it noted that the fifteen amateur gardeners from the village who exhibited won thirty-nine prizes, while four amateurs of the same type outside the village obtained thirteen prizes.

Now, we have another class of exhibitors which is fairly large, namely, the city man who has settled in the near country, possibly with the mistaken idea that he would save enough in taxes to balance the increased cost of living out of the city. I find that of this class there were ten from Toronto Township who exhibited and took forty-eight prizes, a higher percentage you will note than obtained by the owners of the smaller gardens.

City people resident in the village obtained ten prizes for three exhibitors.

One old resident in Toronto Township, Mr. Bedford, who makes his living from the soil, won the remarkable number of twenty-three prizes out of the one hundred and thirty-eight awarded by the Society and qualified for the second time for the R. Y. Eaton trophy given to the winner of the highest number of points in all four classes of fruits, vegetables, flowers and poultry.

Now, our show committee in following the judges became much impressed with the necessity of special instruction to exhibitors on how to choose their exhibits and how to prepare them for exhibition. For example, some bantam corn from my garden took first prize because some really better corn had the tips broken, while in another exhibit the cobs were so large that typical bantam characteristics began to disappear. Then again some potatoes took second prize over some really finer specimens because the latter were so elaborately washed, scrubbed, polished and manicured that they seemed more like wax ornaments for the mantelpiece than humble vegetables doomed to be stored in a root cellar. Further, some very fine looking carrots failed to get a place because they were too large to wear a seventeen inch collar. Possibly the judge thought the market qualities of a carrot could not be considered good if you had to cut it in half when a housewife asked for ten cents worth. So we are going to have a talk on "How to choose and prepare vegetables and flowers for exhibition." Mr. Dockray has been elected for the job though I am not sure that he knows it as yet.

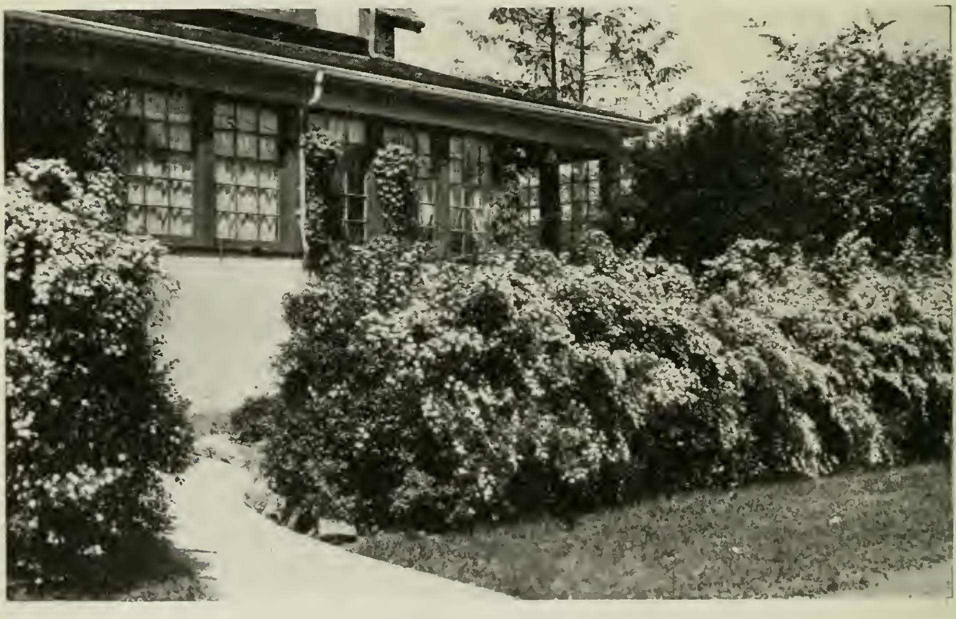
In another line entirely there is work to be done. There is plenty of advice and expert assistance obtainable if you want to plan a large garden or if money is no object. Mrs. Dunington-Grubb gave a very interesting address before our Society which contained much excellent matter and set forth very clearly the general principles of landscape gardening, but there is a great opening for someone who can show us how to make the most, artistically, of comparatively small plots of ground where the expense must be kept at a minimum and practically the only labour available is that of the family.

In the matter of publicity our Society has failed of late. We want to get from this convention some ideas as to the best methods of keeping ourselves in the public eye and particularly how to attract people to our fall show. This was written before I knew that Mr. C. W. Wilson was going to speak on that very topic. It pays to advertise. People more easily overlook a violet than a bed of tulips or a skunk cabbage.

We are also keen to know how to attract a larger membership. Are premiums a real help or not? We have not given any since our first years, and the membership has not suffered thereby, though it has not increased.

This year I hope to find some work for our Society which will give it an opportunity to keep in the public eye. We have a fine new school in Port Credit on a three acre site which so far has not been graded or improved in any way. I have the honour of being on the School Board and this year it will be my special care to see that the grounds are properly laid out for games and sports and also in flower beds and lawns, and in this I hope, and I think not vainly, for the help of the Horticultural Society. I am convinced that it pays in more ways than one to cater to the children. In the first place you are dealing with plastic material and it is much easier to instil a desire for beauty in a child or to direct its desire to do things into an horticultural channel than to attempt to similarly educate an adult. Then again in a village or in rural districts, the best way to reach the parents is often through the children. The schools may, with the cooperation of the school board and the teachers, be used effectively to advertise Horticultural Society meetings. For instance, in working up a Victory Loan Campaign meeting I filled a hall with school children in the afternoon, showed them some educational films and told them to go home and tell their parents what they had seen and what great things might be expected at the evening meeting. The result was we had a bumper house that night, the best meeting of its kind in the county. The best attended shows our Society has had were those at which children have exhibited. You all know what an average Sunday-school entertainment is like; well, not exactly thrilling; but because little Elizabeth Ann is going to sing "I want to be an Angel," or Georgie recite "The Boy Stood on the Burning Deck," all the parents and all the sisters, cousins and the aunts of the children will be there, and the house will be packed. Now, I know it is something of a strain on a show committee's finances and time, to include some classes for children and to ensure that children's products only will be shown therein, but I believe it pays in the interest created and in the publicity which results. I am now advised that our show committee has resolved to co-operate in any school fair the school board may decide on.

You will note that I have been harping a good deal on "boosting" methods in creating interest in Horticultural Societies in small centres because the main thing there is to create interest and secure membership. After that there is little difficulty in securing suitable material for interesting and profitable winter meetings or in carrying on other useful activities. Any Society which can enlist the services of a good "glad hand artist," if you will excuse the slang, who is equally at home in a mothers' meeting or a U. F. O. convention, and who will go out into the byways and hedges and compel members to come in is truly fortunate. Is Dr. Bennett in that class?



A Beautiful Hedge.

One of our experiments at Port Credit taught us some very valuable lessons. The executive offered a special prize for the best decorated table set for four persons. The decision as to the relative merits of the exhibits was left to popular vote. The result was quite satisfactory, in some respects, for the popular verdict agreed with that of the best qualified judges and the voters certainly paid very much closer and more critical attention to the exhibits than they would otherwise have done. But an unexpected result was a row that rocked the Society to its foundations, for one good lady with more zeal than discretion spent most of her time outside the hall endeavouring to enlighten the electorate as to the merits of the respective exhibits. Even the most charitable reluctantly agree that it is quite possible that the lady showed some bias in her judgments, unconscious, of course, while the other exhibitors openly alleged undue influence, bribery and corruption, the pollution of the fount of justice at its source, etc., etc. Well, since then democratic ideas have gone by the board. We now believe in an autocratic judge and take the utmost care not to let the lady in question get within a mile of him. But after all, the greatest lesson we learned from that experiment was the (shall I say unexpected?) beauty of common things, when brought together by someone of sufficient discernment.

We note as we walk along our country paths the common toad-flax or butter and eggs and say "O! Yes, it's rather pretty but hardly in the same class as the carnation." And we perhaps pick a few stems of the blue vervain and say, "That is rather a lovely blue but the flower has none of the surpassing beauty of the rose." And yet the table which won first prize was decorated with toad-flax and blue vervain and was in competition with a table decorated with roses and a table decorated with carnations. Of course, the tablecloth and flower bowl and vases were judiciously selected to harmonize with the colour scheme of the flowers. That was the work of the artist who had the eye to see beauty and the ability to create new arrangements of beautiful things which in combination please us more than such beautiful flowers as roses or carnations. It is a satisfying thought that there is so much beauty about things that will cost us a mere trifle or nothing at all. I believe there is an opening for someone in connection with our work to give us a talk, illustrated, of course, on the artistic possibilities of colour combinations. It requires no great degree of cultivation of the colour sense to see that salvias do not look well in front of a red brick wall or that pink peonies and yellow—red tulips are in a state of war, but the underlying principles of colour harmony are not too well known to the general.

Now, finally, I wish to bring to your notice a rather striking idea mooted to me the other day by Mr. C. A. McLean, one of our directors. He had fallen under the spell of the genial Jack Miner and was full of Canada geese and other birds, not physically, of course, and was bubbling over. "Why not," he said, "make the valley of the Credit River as far as the Mississauga Golf Club a bird sanctuary." That raises the question, if migratory and other birds were entirely free from molestation, would there be any possibility of seeing between the banks of this lovely river any such scenes as have made Kingsville famous. There is no doubt about the goodwill of the owners of riverbank property but what about the rights of the public on the open river? I would be glad to hear what the bird men have to say about this.

THE GARDENS OF CANADA IN THE FUTURE.

SAMUEL KIIK, GEORGETOWN.

As time is short I will only speak briefly. It is always a beautiful thing to talk about flowers, as W. E. Groves has said, "aside from the preaching of the gospel and looking after the sick, there is no better work than cultivating flowers."

The progress that has been made during the past thirty-five years in this country has gone in leaps and bounds, but there is still a great deal of work to be done.

As you travel in trains you see so many places that have been sadly neglected, where nothing has been done to beautify stations. I had an interview with the Eastern District Superintendent of the Grand Trunk and they have appointed a landscape gardener to take care of that work.

I would also like to dwell for a few minutes on the rural districts. There has been enough said about the large towns without my covering that part again. The schools in the rural districts, apart from the buildings, and the teachers, have been very very sadly neglected, and there is not as much as a shade tree for the children to gather underneath in some cases, in the County of Halton, anyway. If the nearest Society to such conditions would try and get in touch with the teacher and also the trustees of those schools and set apart one day, say in May, when those schools could be induced to plant shrubs once a year, in time those children would grow up and it would be like a holy ground to them when they watch those things grow, but the local Society would have to see that the planting was done properly so that the shrubs and trees would make good progress.

In regard to the small towns. We pass along and usually see a picket fence on the boundary line between two houses; sometimes a barbed wire fence. If there was a border of flowers between those two houses it would mean a great transformation in our small towns. And also as we pass along these highways, (we are getting beautiful highways in this Province, and I am very glad to say we are having one of the best through our town), but, as we go along roads in a very prosperous farming community it is really appalling to see the condition of the farmhouses. There has been no attempt made whatever, in, I might say, 99 cases out 100, to beautify the home, and I do not think there is anything in the world which will help to keep the women on the farm like flowers around a farmhouse, and there is nothing more beautiful for the farmer's wife, after all her household duties are done, than to gather her children around and work in the garden for a while. But apart from a few plots of asters, there is nothing done in the way of planting of flowers around farmhouses.

I am very pleased to see that to-day there has been a motion put through to try and prevent misrepresentation on the part of houses selling plants, etc. But we have another thing that is equally as bad. There are some firms who send out agents among the farmers and a lot of people who are in the rural districts are ignorant really of what they want. The agent himself does not know what he is selling. The only thing he knows is that he gets so much out of every dollar's worth he sells, and that is the reason why there have been so many failures even in the towns with Horticultural Societies. There ought to be a copy of that motion sent to a good many of our nursery men in Canada, and perhaps then they would take some steps to have their men whom they send out selling better informed.

THE CHAIRMAN: A delegate, J. Davidson, District No. 9, Chatham, hereby gives notice that at next annual convention of the Ontario Horticultural Association, he will introduce a resolution providing for legislation for the further development of the local districts of the Association.

The Chairman then thanked the convention for their courtesy to the chair during the convention proceedings.

The convention then closed with the singing of the National Anthem.

STATEMENT OF MEMBERSHIP AND LEGISLATIVE GRANTS FOR 1919-21.

Societies.	Expenditure in 1920, on which grant for 1921 is based.		Membership.		Legislative grants.		
			1919	1920	1919	1920	1921
	$	c.			$	$	$
Acton	281	27	108	174	76	76	81
Agincourt	157	57	83	98	40	47	45
Alvinston	88	80	90	61	55	41	28
Amherstburg	474	54	113	77	95	90	91
Aurora	610	20	107	203	75	95	139
Aylmer	1,164	87	119	132	151	178	210
Ayr (organized in 1920)	271	12	....	72	....	71	58
Barrie	690	58	175	327	120	119	177
Blenheim and Harwich	686	44	107	358	87	120	183
Bothwell	225	86	63	64	63	34	49
Bowmanville	172	59	68	106	54	44	50
Brampton	287	69	134	179	125	87	84
Brantford	1,635	88	1,012	886	294	594	444
Brussels	165	63	87	100	66	59	48
Burlington (organized in 1920)	183	50	....	136	....	75	58
Carleton Place	382	17	148	142	146	135	90
Chatham	5,374	61	767	783	800	800	800
Chesley (organized in 1920)	172	54	....	116	....	75	52
Chesterville	159	58	96	94	75	65	46
Clifford	702	20	164	136	236	212	139
Clinton	620	39	325	274	176	233	155
Delhi (organized in 1920)	149	26	....	64	....	64	37
Dresden (organized in 1920)	72	67	....	56	....	55	23
Dundas	647	86	108	78	111	84	117
Durham	194	23	66	64	46	49	44
Dutton and Dunwich	674	54	123	134	112	112	131
Elmira	305	90	77	102	68	57	69
Elora and Salem	753	77	96	245	106	111	170
Essex	333	28	90	75	154	91	69
Fenelon Falls	246	91	102	76	75	46	55
Fergus	313	81	92	136	62	54	79
Fort William	2,017	41	235	1,116	112	145	552
Galt	1,519	87	334	416	235	190	325
Gananoque (organized in 1920)	364	89	....	127	....	75	85
Georgetown (organized in 1920)	423	15	....	167	....	75	102
Goderich	240	36	127	140	107	88	67
Grimsby	345	82	72	93	54	46	74
Guelph	2,673	89	1,096	1,026	517	692	633
Haileybury	334	16	101	67	111	81	67
Hamilton	1,961	58	842	921	450	515	501
Hanover	806	42	287	302	136	216	190
Hastings (organized in 1920)	146	45	....	92	....	75	43
Hespeler	490	83	132	166	121	106	112
High Park	906	46	346	464	227	230	240
Hillsburg	305	68	67	67	21	75	62
Ingersoll	1,657	44	177	161	366	364	292
Iroquois	378	81	101	152	75	72	92
Kemptville (organized in 1920)	287	25	....	143	....	75	76
Kingston	420	43	....	251	....	....	119
Kingsville	1,498	34	119	315	198	189	300
Kitchener	1,358	40	349	501	378	326	318
Leamington (organized in 1920)	243	34	....	184	....	75	78
Lindsay	2,016	22	238	272	270	353	372
Listowel	365	51	65	65	47	76	71
London	3,335	56	1,604	975	761	800	726
Markham (organized in 1920)	131	34	....	67	....	67	35
Midland (organized in 1920)	123	18	....	162	....	75	54
Milton	254	61	121	128	62	72	67
Mitchell	217	32	88	103	101	49	56
Morrisburg	521	37	191	178	108	245	119
Napanee	189	31	63	63	51	45	43

STATEMENT OF MEMBERSHIP AND LEGISLATIVE GRANTS FOR 1919-21.—*Continued.*

Societies.	Expenditure in 1920, on which grant for 1921 is based.	Membership.		Legislative grants.		
		1919	1920	1919	1920	1921
	$ c.			$	$	$
Newcastle	510 00	79	269	72	52	137
New Hamburg	140 81	54	70	54	37	37
New Toronto	614 31	101	109	75	133	119
Niagara Falls	1,068 87	708	669	149	453	309
N. Blenheim (organized in 1920)	53 30	....	47	....	44	19
Orangeville	412 78	67	135	149	96	93
Oshawa	273 58	132	162	75	83	77
Ottawa	3,482 19	1,523	1,536	800	800	800
Owen Sound	768 88	237	179	197	205	158
Palmerston (organized in 1920)	336 98	....	138	....	75	82
Paris	751 43	323	365	284	233	194
Perth	546 21	227	287	153	159	147
Peterborough	392 55	340	159	212	207	95
Port Credit	249 07	54	52	58	41	51
Port Dover	270 79	106	112	104	101	66
Port Hope	198 89	90	106	60	67	54
Port Stanley	No returns	....	....	....	....	....
Prescott	470 31	167	146	75	105	105
Richmond Hill	169 96	50	97	56	36	47
Ridgetown (organized in 1920)	202 28	....	110	....	75	55
Riverdale (organized in 1920)	307 78	....	104	....	75	71
Rodney (organized in 1920)	354 65	....	96	....	75	76
Rockwood (organized in 1920)	247 88	....	96	....	75	59
Russell	72 82	70	42	75	33	20
St. Catharines	3,201 19	862	1,119	800	697	735
St. Thomas	16,570 03	2,006	1,567	800	800	800
Sarnia (organized in 1920)	498 39	....	147	....	75	109
Seaforth	857 53	169	205	156	160	177
Smith's Falls	491 86	52	119	115	82	102
Southampton (org'd in 1920)	157 84	....	127	....	75	52
South Norwich Tp	273 99	102	106	38	56	65
Stirling	211 18	102	98	51	60	54
Stratford	1,513 63	802	903	420	551	428
Strathroy	469 09	300	319	209	160	142
Thornhill	254 55	50	50	126	66	50
Tillsonburg	315 41	64	89	138	31	68
Toronto	1,370 41	621	408	575	700	300
Trenton (organized in 1920)	1,431 39	....	225	....	75	271
Walkerton	388 41	160	177	....	78	98
Walkerville	476 02	156	156	161	168	108
Wallaceburg	1,429 73	263	303	292	352	287
Walton (organized in 1920)	339 35	....	112	....	75	77
Waterloo	334 30	101	85	90	87	71
Welland	No returns.	107	....	96	48	....
Westboro	499 00	214	211	101	133	123
West Lorne (organized in 1920)	263 08	....	77	....	75	58
Weston	2,542 54	1,741	851	342	768	576
Wheatley	303 18	56	68	89	88	62
Whitby	194 58	65	101	60	40	52
Wiarton	201 09	....	80	66	....	49
Winchester	593 01	213	285	192	148	153
Windsor	836 72	562	211	524	496	176
Woodstock	816 92	232	312	182	187	194
Totals	92,466 39	24,903	28,035	16,940	17,644	18,000

ACTUAL RECEIPTS AND EXPENDITURE OF HORTICULTURAL SOCIETIES IN 1920.

Societies.	Legislative grant.	Municipal grants and donations.	Members' fees.	Gate Receipts at exhibitions.	Total actual receipts.	For exhibitions.	For seeds, bulbs and plants and Civic Improvement.	Lectures and periodicals.	Officers' salaries.	Total actual expenditure.
	$	$	$	$	$	$	$	$	$	$
Acton	76	......	174	......	252	......	197	56	15	281
Agincourt	47	......	98	......	150	......	*3 118	4	......	157
Alvinston	41	......	61	......	132	......	85	......	......	88
Amherstburg	90	225	77	......	463	......	427	......	25	475
Aurora	95	154	203	40	625	246	*20 99	9	25	610
Aylmer	178	44	132	......	1,166	3	772	......	85	1,164
Ayr	71	144	72	175	498	155	....	......	......	271
Barrie	119	67	327	40	817	130	342	10	50	691
Blenheim & Harwich	120	75	292	......	697	......	626	15	......	686
Bothwell	34	15	64	......	173	......	228	......	18	226
Bowmanville	44	......	106	......	150	......	161	......	10	173
Brampton	87	......	179	......	278	......	133	72	......	287
Brantford	594	250	886	......	1,761	......	*51 1,069	9	300	1,635
Brussels	59	......	100	......	159	......	*2 140	......	10	165
Burlington	75	......	136	......	252	21	137	4	......	183
Carleton Place	135	61	142	53	468	60	211	4	50	382
Chatham	800	1,500	783	......	4,832	......	4,967	140	50	5,374
Chesley	75	......	116	......	257	......	145	7	......	173
Chesterville	65	......	94	......	184	......	120	......	18	159
Clifford	212	30	136	101	735	358	*25	......	35	702
Clinton	233	25	274	......	573	......	541	1	15	620
Delhi	64	......	64	......	168	......	144	......	......	149
Dresden	55	......	56	......	111	......	72	......	......	72
Dundas	84	......	78	......	612	......	*15 523	67	25	647
Durham	49	......	64	15	198	2	115	......	30	194
Dutton & Dunwich	112	121	134	......	732	......	500	......	50	675
Elmira	57	47	102	30	325	46	*4 181	23	10	305
Elora & Salem	111	114	245	11	832	100	*6 431	......	25	754
Essex	91	125	75	......	304	......	134	30	100	332
Fenelon Falls	46	15	76	......	191	......	188	......	......	246
Fergus	54	30	135	43	310	151	43	......	15	314
Fort William	145	20	1,106	586	2,340	133	718	11	240	2,017
Galt	190	156	445	33	1,450	156	930	4	100	1,519
Gananoque	75	155	127	27	425	45	*7 225	43	......	364
Georgetown	75	110	167	......	464	......	379	10	......	423
Goderich	88	20	140	......	251	......	161	4	20	240
Grimsby	46	......	93	34	277	31	249	37	......	345
Guelph	692	550	1,026	139	2,694	243	*165 1,548	100	......	2,673
Haileybury	81	15	43	71	367	181	....	......	50	334
Hamilton	515	250	772	114	1,701	236	756	83	150	1,961
Hanover	216	10	302	......	814	......	586	......	20	806
Hastings	75	20	92	......	199	......	131	......	......	146
Hespeler	106	166	......	......	369	......	349	67	35	490
High Park	230	......	464	......	882	96	*42 383	41	46	906
Hillsburg	75	2	38	78	240	157	18	......	15	306

ACTUAL RECEIPTS AND EXPENDITURE OF HORTICULTURAL SOCIETIES IN 1920.—*Continued.*

Societies.	Legislative grant.	Municipal grants and donations.	Members' fees.	Gate Receipts at exhibitions.	Total actual receipts.	For exhibitions.	For seeds, bulbs and plants and Civic Improvement.	Lectures and periodicals.	Officers' salaries.	Total actual expenditure.
	$	$	$	$	$	$	$	$	$	$
Ingersoll	364	......	161	......	1,848	......	1,133	......	300	1,657
Iroquois	72	22	152	......	326	34	273	1	......	378
Kemptville	75	56	143	......	231	25	*25 216	......	......	287
Kingston	......	29	263	43	335	198	*68	......	75	420
Kingsville	189	180	315	46	1,295	5	1,274	2	10	1,498
Kitchener	326	243	465	213	1,349	380	477	10	100	1,358
Leamington	75	35	184	......	342	......	197	7	......	243
Lindsay	353	615	272	......	2,127	......	1,400	10	25	2,016
Listowel	76	50	65	......	397	......	301	16	25	365
London	800	......	975	......	3,434	......	1,387	374	200	3,336
Markham	67	......	67	......	134	8	47	16	......	131
Midland	75	......	162	......	237	......	116	......	......	123
Milton	72	......	128	......	279	......	*50 155	......	15	254
Mitchell	49	......	103	......	178	......	154	......	25	217
Morrisburg	245	22	178	57	678	59	234	15	20	521
Napanee	45	......	63	......	117	106	27	23	25	189
Newcastle	52	10	269	26	462	8	457	......	......	510
New Hamburg	37	26	70	25	157	51	49	3	......	140
New Toronto	133	250	110	......	594	235	136	35	......	614
Niagara Falls	453	53	669	......	1,195	......	*125 619	249	......	1,068
North Blenheim	44	......	47	......	124	......	44	6	......	53
Orangeville	96	......	135	......	356	......	347	......	30	413
Oshawa	83	......	171	......	255	......	245	......	13	273
Ottawa	800	586	1,536	......	3,272	362	1,574	184	250	3,482
Owen Sound	205	47	154	19	770	252	405	7	25	769
Palmerston	75	25	138	......	390	......	242	60	......	337
Paris	233	115	365	18	974	209	450	......	......	751
Perth	159	40	287	......	527	......	272	114	30	546
Peterborough	207	9	159	......	366	......	*70 217	5	50	392
Port Credit	41	148	52	......	270	114	......	12	......	249
Port Dover	101	40	112	33	324	75	17	9	50	270
Port Hope	67	......	106	......	173	......	185	......	12	198
Port Stanley	Returns not Received.									
Prescott	105	18	146	......	517	......	460	......	......	470
Richmond Hill	36	18	97	......	191	88	35	......	......	170
Ridgetown	75	4	110	......	246	......	*25 153	......	175	202
Riverdale	75	24	87	......	373	128	......	5	......	307
Rodney	75	70	96	......	397	......	331	3	......	355
Rockwood	75	......	96	......	388	55	115	......	......	247
Russell	33	......	42	......	99	......	*7 51	5	......	72
St. Catharines	697	584	1,119	306	3,238	705	1,011	11	35	3,201
St. Thomas	800	2,939	1,567	......	16,390	......	8,150	241	2,100	16,570
Sarnia	75	21	147	......	699	......	421	......	......	498
Seaforth	160	......	205	......	836	......	579	6	60	857
Smith's Falls	82	300	119	10	511	47	388	6	......	492
Southampton	75	58	127	......	267	......	145	......	1	157
South Norwich Tp.	56	1	106	......	229	......	203	6	......	274

ACTUAL RECEIPTS AND EXPENDITURE OF HORTICULTURAL SOCIETIES IN 1920.—*Concluded.*

Societies.	Legislative grant.	Municipal grants and donations.	Members' fees.	Gate Receipts at exhibitions.	Total actual receipts.	For exhibitions.	For seeds, bulbs and plants and Civic Improvement.	Lectures and periodicals.	Officers' salaries.	Total actual expenditure.
	$	$	$	$	$	$	$	$	$	$
Stirling	60	25	121	......	232	......	155	40	.....	211
Stratford	551	365	903	......	1,834	181	*15 950	97	100	1,513
Strathroy	160	......	319	......	480	20	*47 327	17	25	469
Thornhill	66	59	50	......	242	136	....	3	......	254
Tillsonburg	31	7	89	......	219	31	170	3	25	315
Toronto	700	......	408	......	1,495	527	....	56	40	1,370
Trenton	75	648	225	573	1,763	269	577	......	......	1,432
Walkerton	78	60	177	31	369	38	*13 242	9	......	388
Walkerville	168	......	156	......	383	......	303	......	75	476
Wallaceburg	352	625	303	......	1,369	......	1,363	......	......	1,429
Walton	75	10	112	......	340	......	255	35	......	339
Waterloo	87	100	97	45	330	109	*23 84	11	40	334
Welland	Returns not Received.									
Westboro	133	41	211	......	483	162	*12 176	.....	15	499
West Lorne	75	69	77	......	333	......	255	......	......	263
Weston	768	77	851	165	2,001	129	1,091	......	100	2,543
Wheatley	88	35	68	......	355	......	265	15	10	303
Whitby	40	......	101	......	174	......	127	34	......	194
Wiarton	......	......	80	38	165	18	*16 135	.....	......	201
Winchester	148	90	......	277	541	18	369	......	35	593
Windsor	496	......	211	......	874	......	349	......	150	837
Woodstock	187	250	312	9	790	8	427	3	100	817
Totals	19,008	13,449	27,473	3,524	93,567	7,340	52,430	2,615	6,003	92,430

*For Lawns and Gardens.

SECRETARIES OF HORTICULTURAL SOCIETIES.

Societies.	Secretaries.	Societies.	Secretaries.
Acton	R. Mc. McDonald.	Mitchell	A. J. Blowes.
Agincourt	John H. Short.	Morrisburg	C. E. Cook.
Alvinston	C. E. Gibson.	Napanee	W. S. Herrington.
Amherstburg	W. W. Eccles.	Newcastle	Mrs. J. E. Matchett.
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Blenheim & Harwich	W. G. Thomson.	Orangeville	Miss E. V. Carkell.
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Bowmanville	Mrs. E. V. Scobell.	Oshawa	E. J. Jacobi.
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Burlington	Miss M. H. Townsend.	Paris	O. R. Whitby.
Carleton Place	W. J. Welsh.	Perth	B. S. Buffam.
Chatham	Jas. Innes.	Peterborough	Leon Fraser.
Chesley	Mrs. Jean Beattie.	Port Credit	John M. Vale.
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Clinton	H. R. Sharpe.	Port Stanley	A. J. Nicholas.
Delhi	J. W. Barnard.	Prescott	F. C. Stone.
Dresden	Mrs. G. H. Laurence.	Richmond Hill	Miss M. Trench.
Dundas	Jas. A. Kyle.	Riverdale	Jas. Milne, 85 Ferrier Avenue, Toronto.
Durham	C. C. Elvidge.	Ridgetown	P. G. Powell.
Dutton and Dunwich	W. H. Cape.	Rodney	Mrs. M. Bisnett.
Elmira	L. Koerber.	Rockwood	A. L. Squires.
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Essex	Rev. H. Millar.	St. Catharines	Mrs. A. N. Lindsay.
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Fergus	A. J. Holbrook.	Sarnia	Geo. Wenino.
Fort William	John H. Garner, 234 S. Brodie Street.	Seaforth	A. D. Sutherland.
Galt	L. Norman.	Smith's Falls	Jas. L. Smith.
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Haileybury	J. N. White.	Thornhill	Miss M. Simpson.
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Hanover	Dan. Luesing.	Toronto	O. St. G. Freer, 136 Arlington Ave.
Hastings	J. M. Thomson.	Trenton	J. F. Cox.
Hespeler	G. W. Gibbard.	Walkerton	Miss E. Truax.
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Iroquois	C. K. Cameron.	Waterloo	Miss B. Van Every.
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Kitchener	H. R. Wood.	Weston	Thos. Harrison.
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Lindsay	Miss M. K. Hogan.	Whitby	Wesley Augustus.
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Markham	D. P. Platt.	Windsor	H. J. McKay.
Midland	R. S. McLaughlin.	Woodstock	W. L. McKay.
Milton	Jas. E. Bell.		

Ontario Department of Agriculture

FIFTY-SECOND ANNUAL REPORT

OF THE

Fruit Growers' Association

OF

Ontario

1920

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed by CLARKSON W. JAMES, Printer to the Kings' Most Excellent Majesty
1921

Printed by
THE RYERSON PRESS.

To His Honour H. LIONEL CLARKE,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present herewith for your consideration the Fifty-second Report of the Fruit Growers' Association of Ontario for the year 1920.

Respectfully yours,

MANNING W. DOHERTY,

Minister of Agriculture,

Toronto, 1921.

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Fruit Growers' Association of Ontario

OFFICERS FOR 1921

President .... D Allan, Grimsby.
Vice-President .... H. Sirett, Brighton.
Secretary-Treasurer . ... P. W. Hodgetts, Parliament Buildings, Toronto.
Executive .... Officers, together with A. Craise, St. Catharines, and C. R. Terry, Clarkson.

Directors.

Div. 1. W. T Macoun, Ottawa.
2. J. C. Keeler, Brockville.
3. R W. Ireland, Wellington.
4. H. Sirett, Brighton.
5. W. J. Bragg, Bowmanville.
6. C. R. Terry, Clarkson.
7. David Allan, Grimsby.
Div. 8. A. Craise, St. Catharines.
9. J. E. Johnson, Simcoe.
10. W. M. Grant, Cedar Springs.
11. H. K. Revell, Goderich.
12. J. F. Elliott, Oxford Centre.
13. W. L. Hamilton, Collingwood.
O.A.C. Prof. J. W. Crow, O.A.C., Guelph.
H.E.S. E. F. Palmer, Vineland station.

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Canadian National: W. F. W. Fisher, Burlington.
London: J. C. Harris, Ingersoll, and A. Sadler, Lambeth.
Ottawa: W. T. Macoun, Ottawa.

Committees.

Horticultural Publishing Company: Hamilton Fleming, Grimsby.

New Fruits: W. T. Macoun, Ottawa; Prof. J. W. Crow, Guelph; E. F. Palmer, Vineland Station.

Historical: A. W. Peart, Burlington; W. T. Macoun, Ottawa.

Transportation: W. H. Bunting, St. Catharines; Jas. E. Johnson, Simcoe; D. D. Carpenter, Winona; R. B. Scripture, Brighton; H. T. Foster, Burlington.

Royal Show: David Allan, Grimsby; J. E. Johnson, Simcoe; W. F. W. Fisher.

Ontario Horticultural Exhibition: D Allan, J. E. Johnson, Elmer Lick, W. F. W. Fisher.

Tariff Committee: W. H. Gibson, Newcastle; J. B. Fairbairn, Beamsville; T. J. Mahoney, Hamilton; H. Fleming, Grimsby; W. R. Dewar, Leamington. ington.

Sales Organization: H. Sirett, Brighton; W Palmer. Marshville; C. W. Gurney. Paris; J. E. Johnson, Simcoe.

FINANCIAL STATEMENT

1920.

RECEIPTS.	$ ¢	EXPENDITURES.	$ ¢
Bal. on hand Dec. 31, 1919	953 70	Annual Meeting	80 50
Fees	193 50	Committees	113 90
Show	46 65	Show	58 04
Interest	21 33	Stock	150 00
Grant	1700 00	Printing	35 25
		Miscellaneous	264 02
		Balance on hand	2213 47
	2915 18		2915 18

DETAILS OF EXPENDITURE.

ANNUAL MEETING.

	$ ¢	$ ¢
Consumers Gas Co.	15 50	
Maud E. Coo, reporting	60 00	
The Journal, advertising	5 00	80 50

COMMITTEES.

A. A. Craise	19 55	
J. C. Keeler	20 15	
H. K. Revell	15 80	
H. Sirrett	16 55	
H. Fleming	7 15	
W. M. Fletcher	34 70	113 90

SHOW.

G. H. Martyn & Sons, fruit	18 00	
Jos. R. Canham, fruit	3 00	
P. W. Hodgetts	3 30	
Freight, G.T.R.	33 74	58 04

STOCK.

Canadian Horticulturist		100 00

MISCELLANEOUS.

Printing, College Press, Envelopes, Vouchers, Membership cards	$35 25
Clerical help	242 00
Auditing	10 00
Dominion of Canada Guarantee and Accident Co., Treasurer's Bond, $10.00 Interest, etc., $2.02	12 02

Fruit Growers' Association of Ontario

ANNUAL CONVENTION

The sixty-first annual meeting of the Fruit Growers' Association of Ontario was held at the Prince George Hotel, Toronto, on the 16th and 17th of February, 1921. Much interest was manifested in the proceedings, as the addresses and discussions were of a most practical character.

Mr. David Allan, of Grimsby, President of the Association, occupied the chair.

PRESIDENT'S ADDRESS

David Allan, Grimsby.

We met last year in connection with the Horticultural Exhibition held, in November, in the Canadian National Exhibition Buildings, which in itself carries with it an educative influence that should tend to send us back to our homes to produce better fruit than ever before.

Owing to the uncertainty of climatic conditions and the almost impossibility of heating the building, we felt that we could not take a chance on a repetition of conditions such as we labored under at our last meeting, and so we had to forego meeting in conjunction with the Horticultural Exhibition this year. However, I trust that arrangements will be completed in the near future whereby we can meet with every comfort and convenience assured. in the same building and during the week of the Exhibition, thus combining business with pleasure. We further decided that owing to the difficulty of securing accommodation, even in this great city of Toronto, to confine our convention to two days.

We place our program in your hands with a good deal of satisfaction—because we believe it is a good one—and because we believe it deals with things in connection with our industry that are vital at the present time; such as our Package Supply, an Ontario Sales Agency, Transportation, Marketing Conditions both at home and in Great Britain, and Co-operation as an essentiality in our business.

During the year just past, we were vigorously engaged in combating the proposed increase in express rates, and with considerable success, by having the proposed increase materially reduced. The history of 1920 is written, and from a fruit grower's standpoint it was in many respects different to that of any previous year.

In 1920 we had undoubtedly the largest production of fruit of almost every kind ever previously experienced. It looked like a good thing for the growers and surely would have been but for one or two conditions that prevailed—such as the deflation in the prices of our product, and the inflation in the prices of containers. And again, we labored under a system of distribution that was entirely inadequate to cope with the situation, with the result that central points were glutted and markets ruined, for a time at least. So that the returns did not allow any profit, thus resulting in thousands of baskets of peaches and plums being left on the trees. The remedy, I believe, is in the one word—CO-OPERATION.

We, as fruit growers, have reason to feel deeply indebted to the Hon. Manning Doherty, Minister of Agriculture for Ontario, for his personal interest in our indusry as shown by his taking the initiative in endeavouring to improve our marketing conditions. Our thanks are also due to Mr. C. W. Baxter, Fruit Commissioner, Ottawa, for his whole-hearted assistance in everything that would tend to the betterment of our business.

SOME FURTHER LIGHT ON THE WINTER INJURY PROBLEM

J. A. Neilson, Lecturer on Horticulture, O. A. College, Guelph.

Extent of Losses Caused by Winter Injury. Winter Injury of fruit trees is not an unusual occurrence in Ontario and other countries having similar climatic conditions. As a matter of fact some injury occurs in almost every winter, but in some winters, however, the loss is very great. The winter of 1917-18 was perhaps the most disastrous ever experienced in Ontario, many thousands of trees being killed outright and hundred of thousands more damaged to a greater or less degree. At this date, almost three years later, the full extent of the damage done has become apparent. All kinds of fruit trees were found or reported to be injured, the amount of injury varying with the locality, kinds and varieties grown. In extreme cases 100 per cent of the trees in some Baldwin apple orchards were reported killed. In other cases the loss was very much less. In Eastern Ontario the loss in apple orchards ranged from 20 to 50 per cent., but in Western Ontario the damage was not so heavy. Peach trees suffered considerable injury. One grower in Kent is said to have lost twenty acres of young peach trees, and much damage was reported from the Forest District. Fruit growers in every province in Canada where tree fruits are cultivated reported more or less damage. In the United States a similar condition of affairs prevailed, injury of greater or less extent being reported from every state in the northern part of the American Union.

Forms of Winter Injury. Nearly all the forms of Winter Injury noted by others who have studied this question, were seen by the writer during the summers of 1918-19 or have since been reported by correspondents living in widely separated parts of the apple growing regions of Canada and the United States. These range from complete killing of the tree to bud killing and include root injury, collar rot, bark splitting, trunk splitting, crotch injury, sunscald, blackheart, killing of bark on large and small limbs, killing of fruit spurs, killing of fruit buds, and killing back of terminal growth.

Factors that Cause or Predispose Fruit Trees to Winter Injury. A study of winter injury reveals many interesting points regarding the factors that cause or predispose fruit trees to damage during the winter months.

(1) *Climatic Conditions.*

a. Low Temperatures. Very low temperatures prevailing for some time during the dormant season nearly always produce more or less injury which may manifest in one or more of the various forms listed above.

b. Sudden Changes of Temperature. A sudden and great drop of temperature during the early part of the winter such as was noted in December, 1918, is responsible for certain forms of winter killing which may manifest as bark splitting, trunk splitting, or blackheart. Great variations in the day and night air temperatures which often occur during the late winter or early spring produce similar temperature changes in the bark of trees on the south side of the trunk and large branches running to the north, this causes a rupture of the cells and produces what is known as "sunscald."

c. Cold Winds: Fruit trees growing on sites exposed to strong cold winds are invariably injured more than those growing in well protected sites having good air and soil drainage. Many examples of the effect of cold winter winds winds have been observed by the writer in Ontario and reported by numerous correspondents in other sections of America.

Winds may Operate in any one or all of the following Ways: (1) Winds increase the evaporation of moisture from the bark in winter and may cause complete drying out and the death of the tree.

(2) Winds sweep away the snow from the ground thus allowing frost to penetrate deeply and causing in some cases root injury or crown rot, especially on varieties worked on tender root stocks.

(3) Strong winds evaporate moisture from the soil and thus rob the trees of the moisture they require to go through the dormant period.

Soil Conditions: Soil types and conditions have an important bearing on the power of fruit trees to withstand severe winter cold. Very heavy soils or shallow soils underlaid with a hard impervious sub-soil or shallow soils with a light, gravelly sub-soil are generally not satisfactory for fruit trees because on such soil-types trees make a weak growth and hence are not so well able to stand severe climatic conditions.

Wet Soils: Poor soil drainage is a predisposing factor of very great importance. This point cannot be emphasized too strongly as this soil condition is probably responsible for the death of more trees than any other single factor except that of heavy bearing. An excess of moisture in the soil retards plant growth in the spring, but on the other hand it causes a late growth in the autumn. This is due to the fact that water heats up more slowly than soil and therefore we find that wet soils are always colder in the spring and plant growth is correspondingly later on such soils than on well drained soils. In the autumn, however, the reverse occurs. Wet soils are warmer than well drained soils, because after being warmed by the summer sun the water loses its heat more slowly than soil and thus keeps the soil warm around it. The increase in the soil temperature and the excessive amount of moisture present, especially the latter factor, often causes growth to continue at a season when the growth of trees ordinarily should cease and the tissue be ripening and hardening for the winter. This late succulent is often killed back and the bark of such trees is sometimes severely injured by bark splitting. The writer has seen several cases of very serious injury by bark splitting which was largely due to poor soil drainage.

Cultural Methods. Cultivation continued later in the season than usual or clean cultivation are factors which contribute to winter injury. Soils cultivated late in the season or soils on which no cover crop has been sown contain more moisture than is found in soils which are growing cover crops of some kinds, and this moisture often causes a late growth, which in some seasons does not have time to properly ripen before frost occurs.

Bare soils always freeze deeper than soils which have a protective covering of some kind such as snow or a mat of plant growth. In some cases a covering of vegetable matter or snow makes a difference of several inches in the depth to which frost penetrates. The effect of a cover crop in preventing deep freezing was shown very clearly by Prof. Jos. Oskamp, of Purdue University Experiment Station. In a series of experiments with cover crops he found that frost penetrated to a depth of 57 inches on a bare plot after six weeks of severe freezing in the winter of 1917-18, while on an adjoining plot protected by a cover crop of millet, the frost penetrated to 37 inches.

Cover crops also check late fall growth by absorbing the moisture and help to hold the snow; thus adding to the soil covering, and in other ways operate to the benefit of the trees.

Plowing the soil away from the base of the trees late in the fall and thereby exposing the crown of the tree to the action of frost is liable to cause injury to the crown of some tender varieties such as Ontario, Grimes, Pewaukee, King and others of a similar degree of hardiness. This form of injury is called collar rot or crown rot.

Soil Fertility: Soil Fertility is also an important point in a study of winter killing. Trees growing on properly drained soil well supplied with the substance required for plant growth invariably stand any unusual climatic condition better than other trees growing on soils deficient in plant food. This statement applies to both young and old ex-bearing trees, but especially to bearing trees. Very occasionally one may see instances of winter injury due to a soil being too rich in certain elements of plant food such as nitrogen, but this, however, is very rare indeed. Lack of sufficient plant food is of much greater importance as a contributing factor in winter injury than an excess of plant food.

Heavy Production of Fruit During Preceding Season: Trees which bore a heavy crop of fruit in 1917 were more severely damaged than trees of the same variety or of the same hardiness which bore a light crop or no fruit during the same season. In Prince Edward County the writer saw a striking illustration of the relationship of heavy fruiting to winter injury. A Pewaukee tree had the unusual habit of producing a crop of fruit on a central leader branch in one year and the next year the lower lateral branches bore fruit. On this tree the central leader limb bore no fruit in 1917, and in consequence thereof appeared to be quite healthy when examined in 1918, while the lower lateral branches which bore a heavy crop in 1917 were nearly all dead.

In Northumberland County a Northern Spy orchard which bore a heavy crop of fruit in 1917 was badly injured during the following winter while another Spy orchard near by on practically the same kind of soil, was very slightly injured, due largely to the fact that but little fruit was produced in the previous season and partly to a sufficient supply of plant food.

Research work recently conducted in the United States shows that the hardiness of fruit trees is closely correlated with the presence in the trees of pentosans, substances which are similar to sugars and starches. It is thought that pentosans impart strength to the cell walls of plant tissues and that these cell walls have greater power of retaining moisture than the cells of plants which are relatively low in pentosans. In the ripening of fruits the sugars, starches and closely allied substances present in leaf, twigs and branches are drawn on rather heavily, thus lessening the supply of these materials which are supposed to impart hardness by their power to resist the drying out action of cold and strong wind. Experimental work done recently by Prof. Crow in Ontario, and by Dr. Roberts, in Wisconsin, indicate that it may be possible to change the fruiting habit of biennial bearing varieties by the application of fertilizers and pruning. When this point has been more definitely established, it may prove to be a valuable factor in the prevention of winter injury to those varieties which generally bear alternately.

Hardy Stocks and Varieties: The problem of securing hardy varieties of good quality, and hardy root stocks or varieties on which to propagate or top work other desirable and less hardy varieties, is of greatest importance to fruit growers living in the northern apple growing regions of America. This problem has recently come in for consideration by several experiment stations in the United States and some valuable initial work has already been done. Much more remains to be done along this line, and some fruit growers are of the opinion that Ontario should undertake a comprehensive line of investigation and research work of the fruit stock problem. The growing of tree fruits in this province will not be placed on the most enduring basis until this problem has been satisfactorily solved. The writer had the privilege of spending one year in making a special study of the apple stock problem, while acting as research assistant in the Pomology Section of the Iowa State College. Some interesting and valuable data were obtained; partly by original investigational work and partly by correspondence with practical fruit growers and Experiment Station Officers in various parts of Canada and the United States. A summary of these data shows fairly conclusively that some good commercial varieties of apples can be more satisfactorily grown by topgrafting on hardy vigorous stocks planted for the purpose.

The varieties which are most frequently and favorably mentioned as being used for stock are as follows: 1. Hibernal, mentioned 154 times; 2. Virginia Crab, 136 times; 3. Tolman Sweet, 64 times. These varieties appear to have given the best general satisfaction over a wide range of territory than any other listed. In the middle Western States the Virginia Crab and the Hibernal appear to be the most satisfactory for the leading commercial varieties, e.g. Grimes, Jonathan, Delicious and the North West Greening, and in the Eastern States the Tolman Sweet seems to be the favorite for working with such varieties as the King, Spy, Cayuga, Red Streak, Baldwin and Cranberry Pippin.

Mr. David Tait, the pioneer horticulturalist of the northland, who lives at Iron Bridge, which is approximately in latitude 46°;15″, has used the Hibernal very successfully as stock for the McIntosh, Golden Sweet, Niobe and Liveland. He believes the Darts Crab is even hardier than the Hibernal as a stock, and has attained good results with this variety as a stock for the McIntosh, De Cromcels, Liveland, Duchess, Dudley and Delicious.

The writer does not wish to be quoted as saying that hardy stock will make the scions of less tender varieties entirely hardy. Such a statement would not be correct, especially in the colder parts of the apple-growing parts of North America. In these sections scions of tender varieties worked on hardy stocks were injured during the test winter of 1917-18. Practical experience and experimental work show, however, that some of the less hardy good commercial sorts can be grown more successfully when top worked on more hardy, vigorous disease-resistant varieties.

The common nursery practice of using French crab roots for propagation purposes is open to criticism. French crab root stocks are not entirely hardy and often predispose apple trees to root killing on unfavorable soils or sites. Prof. Macoun of the Central Experimental Farm at Ottawa, found that standard apples grown on French crab roots suffered severely from root killing, but when worked on the roots of Siberian crab very little damage from this cause was noted. There is some evidence to show that own-rooted trees are more desirable on account of the greater hardiness which is believed to be secured. Some economical system should be worked out of securing hardy root stocks for propagation purposes or of getting hardy varieties on their own roots to be grown either as stocks for re-working or for fruit production. As suggested above this work might very well be undertaken by our Experiment Stations and should be eventually adopted by our nurserymen after results of definite value have been obtained.

How to Prevent Winter Killing: We cannot regulate the temperature of the air or prevent winds from blowing, but we can, however, adopt means which may lessen the losses occasioned by unfavorable climatic conditions. The following suggestions of a practical nature may be worth consideration. These are not at all new but owing to recent developments have acquired a new emphasis.

(1) *Selection of Varieties*: In establishing new plantations plant only those varieties of good quality known to be hardy in your district. If possible secure own-rooted trees. Varieties of high quality which are susceptible to collar rot, sunscald, and crotch injury should be top-worked on hardy, vigorous, congenial stocks, which are resistant to these forms of winter injury.

(2) *Proper Soil Drainage*: All soils intended for the growing of tree or bush fruits or land already planted, should be thoroughly underdrained if not naturally or otherwise well drained. Good soil drainage is absolutely necessary and this point cannot be too strongly emphasized.

(3) *Protection Against Strong Cold Winds*: Orchard sites exposed to strong cold winds in the winter should be protected by a suitable windbreak on the north and west sides. This will materially lessen the damage caused by the drying out action of cold winter winds on trees and soil.

(4) *Regulation of Fruiting Habit*: Varieties which are heavy biennial bearers should where economically possible, have the fruit thinned to prevent an undue exhaustion of those materials which are required for the ripening of the fruit and which are also believed to impart hardiness to the tree.

(5) *Cultural Methods*: Where cultivation is given begin cultivation early in the season and cease cultivation at an early date say not later than July 1st, on most soils and for the majority of apple varieties. In peach orchards a little later, say up to August 1st, and on light soils in dry seasons it would be advisable to cultivate a little later than on heavier soils, in wet seasons.

(6) *Maintenance of Soil Fertility*: Apply sufficient fertilizers in the form of stable manure. commercial fertilizer or green manure or a combination of all to keep the soil properly supplied with those elements required for the best growth of tree and fruit.

BIENNIAL FRUIT BEARING IN THE APPLE

J. W. Crow, Professor of Horticulture, O. A. C., Guelph

Biennial bearing is not a fixed characteristic of apple varieties. It is brought about by the development in some one year of blossoms on too large a percentage of spurs. Alternate bearing trees commonly show in their fruiting year fruit buds on from 60 to 90 per cent. of their fruit spurs. From 30 to 50 per cent. of these would be sufficent to produce a full crop. Growths on bearing Duchess and Wealthy trees are of six distinct types, based on their position and on the behaviour of their terminal buds.

(1) Weak leaf spurs, making 1-2 mm. of growth annually. So long as they make only this amount of growth they do not set fruit buds.

(2) Auxiliary leaf spurs, 1-3 mm. is length, produced as lateral growths on blossoming spurs. They rarely produce fruit buds in the season of their origin but normally do so the following year.

(3) Weak fruit spurs, 3-4 mm. in length. They blossom but seldom produce fruit.

(4) Strong fruit spurs 4-9 mm. in length. These bear nearly all the fruit. Individual spurs bear every second year and rarely blossom two years in succession.

(5) Extra long fruit spurs (or shoots). With some varieties shoots from 10—200 mm. in length, occasionally produce strong terminal fruit buds.

(6) Non-fruiting shoots of lengths varying from 10 mm. up to 500 mm. or more. The majority of the longer growths on a tree are of this nature.

The percentage (from actual count) of growths falling in each category is as follows:

TABLE No. 1

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
	1-2 mm.	1-3 mm.	3-4 mm.	4-9 mm.	10-200 mm.	10-500 mm.
1. Alternate bearing tree, in on year...........	2-6	83-96	0	0-.2	0	4-17
2. Alternate bearing tree, in off year...........	2-6	2-8	16-28	59-73	3-9	6-18
3. Annual bearing tree, (McIntosh).........	1-5	31-34	6-11	29-34	2-3	3-18

To secure annual fruiting it becomes necessary to stimulate the growth of the tree *in the off year* so that a considerable percentage of spurs which would normally produce fruit buds in that season will be forced into categories 5 and 6. Spur behaviour will then tabulate as follows:

TABLE NO. 2.

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
	1-2 mm.	1-3 mm.	3-4 mm.	4-9 mm.	10-200 mm.	10-500 mm.
1. Starting with (on year)	2-6	83-96	0	0-.2	0	4-17
2. Stimulated (by pruning) off year.........	1-3	1-4	7-11	18-49	4-6	21-44
3. Next year (estimated)..........		30-40	....	30-40	....	....
4. Result is annual fruiting........................		30-40	....	30-40	....	....

We thus get a tree with two sets of spurs, each set of which produces fruit in alternate years. Our experiments show that this result cannot be accomplished by thinning of the fruit, but that it can be accomplished by *moderate heading back of small branches in the off year.* Our experiments show that it can also be accomplished by stimulating the growth of the tree with Nitrate of Soda *in the off year.* We have gotten good results from 4 lbs to a 12 year old tree. The Nitrate requires to be applied very early in the spring for the reason that the large majority of fruit spurs have a very short period of growth (from 4 to 10 days). Our observations lead us to believe that 75 per cent. or more of the fruit spurs on Duchess and Wealthy have completed their growth for the season *by the time the first blossoms have well set on blooming trees of the same varieties.* Experiments in bud and blossom removal indicates that the date given is certainly the critical period of fruit bud formation for trees of the Duchess variety *in their on year.*

TABLE No. 3.

BLOSSOMING AS RELATED TO FRUIT BUD FORMATION

Branch No.	1919 Growth		Dates of Blossom Cluster Removal	Types of Growths Developed, 1920				
	Strong Fruit Spurs	Long Fruit Growths		Short Leaf Spurs	Long Leaf Growths	Weak Fruit Spurs	Strong Fruit Spurs	Long Fruit Spurs
1a	125	7	15-5-20	3	0	17	101	4
11a	110	8	18-5-20	5	0	21	83	4
12a	91	6	19-5-20	2	1	11	76	4
12b	121	12	20-5-20	7	0	16	89	3
1b	155	9	21-5-20	19	6	12	116	8
2	327	24	22-5-20	46	2	43	263	7
			First Blossoms Opened					
3	112	11	23-5-20	7	14	15	89	9
1c	130	8	24-5-20	6	0	19	98	13
1d	302	15	25-5-20	28	9	61	231	11
			Full Bloom					
11b	404	36	26-5-20	36	21	72	315	31
10a	129	16	27-5-20	43	7	17	81	9
10b	124	13	28-5-20	117	13	3	14	6
			First Petals Falling					
5a	117	5	29-5-20	110	27	13	2	0
			Fruit well set					
Total	2,247	170	79 % fruit buds.	429	100	320	1,558	109
9	118	13	31-5-20	128	31	0	0	0
7a	122	10	2-6-20	143	13	0	0	0
7b	105	7	5-6-20	116	18	0	0	0
4a	110	6	8-6-20	123	11	0	0	0
6	185	12	21-6-20	199	16	0	0	0
4b	209	11	check	236	17	0	0	0
5b	188	9	check	210	14	0	0	0
8	337	22	check	384	32	0	0	0
Total	1,374	90	100% leaf buds	1,539	152	0	0	0

Table 3 shows 79 per cent of fruit bud formation from spurs disbudded before that time and none whatever from spurs disbudded after that time, We suspect that no treatment can be applied after that period which will change the destiny of buds falling in categories 1, 2, 3 and 4 on either bearing or non-bearing trees.

These observations verify work done elsewhere, particularly by Roberts in Wisconsin, who is, however, of the opinion that with some varieties fruit bud determination may continue for several days after blooming is over. We plan to extend these studies and expect to find that with later varieties the critical period will be later than that stated herein for the Duchess variety. It would seem possible, however, to base on the information we now have, very definite statements in regard to annual bearing as affected by pruning, fertilizing, tillage and drainage.

It should be borne in mind throughout, that because of frosts, rains and other conditions beyond the control of the grower the number of blossoms produced affords a much more accurate basis for estimating the correctness of orchard methods than does the amount of fruit produced.

To secure annual bearing it becomes necessary to regulate with a considerable degree of accuracy the growth of the tree *in the off year*. In the light of our present knowldge it does not appear that any treatment can be given *in the on year* which will affect the desired result. Pruning, fertilizing, thinning and tillage *in the on year* all affect the size and colour of fruit but none of them seems to affect the set of fruit buds for the following season. They do, of course, necessarily influence the conditions of internal nutrition of the tree throughout the winter and early in the following spring. It is well known that a tree which has borne a heavy crop is more easily injured by a severe winter but the weight of evidence suggests that early spring growth conditions may, if they are favorable, very quickly overcome any handicap the tree may be under at the end of winter. We know that in heavy bearing varieties the tree is certain to set a large number of fruit buds in the off year. We know now that the question as to how many fruit buds and how many leaf buds will be produced is determined very early in the season—much earlier than we formerly thought. It is probable that bud differentiation begins (physiologically) very early in the spring and that the process is practically completed by blossom time or soon thereafter. Since our problem in securing annual bearing is to stimulate growth in the off year and thereby change into vegetative growth a percentage of spurs which would normally set fruit buds, any condition affecting early growth becomes important. It is remarkable, in this connection, that a tree will set fruit buds heavily in its off year in spite of serious neglect and even under conditions which would seem to be very adverse. This fact probably only verifies the statement that physiological differentiation of buds takes place very early.

It has been shown that pruning and also nitrate of soda may be made use of to stimulate growth. It is probable that in seasons of abundant early spring rainfall, it would be neither necessary nor advisable to use nitrate in any considerable quantity.

These studies also suggest very emphatically that thorough land underdrainage may under certain conditions be extremely important. It has been proven through long experience that root growth begins earlier on drained land. The roots of fruit trees are influenced directly by soil temperature and soil aeration, whereas the top of the tree is acted upon only by air temperature and sunlight. Early tillage likewise becomes a much more important matter than it has sometimes been considered. It is probably correct to say that where tillage is practised in fruit orchards, cultivation should begin as soon as the land is in fit condition to work. It may be stated that there is in this recommendation nothing new. In reply thereto I would point out that hitherto we have lacked definite information dealing with these as well as with many other points in fruit growing practice. In my judgment we are now able to submit actual evidence drawn from careful observation and investigation and to base thereon intelligent and authoritative recommendations.

These studies also suggest that tillage after blossom time has no effect on the succeeding crop and should be therefore considered strictly in relation to the crop of the current season. There is well known and valid objection to late cultivation on the score of increased susceptibility to winter killing but it would appear that in general we might profitably discontinue cultivation much earlier than we have been doing. This thought carries with it a suggestion that perhaps under certain conditions orchards might be grown advantageously in sod. It is possible that the early use of nitrate of soda might overcome the most serious objections to this method of orchard practice, and make it possible for us to secure bountiful annual crops from sod orchards. We should expect to lose somewhat in regard to size of fruit, but would gain very materially in colour and would certainly gain very important advantages in regard to winter hardiness.

AN ONTARIO SALE AGENCY FOR APPLES

C. W. Baxter, Fruit Commissioner, Ottawa.

The fruit grower's problems are many and varied, probably more so than those of any other agricultural product. A great deal of time and money is spent in preparation for the season's crop, the size of which is determined to a large extent by the weather conditions obtaining during the short period at blossom time. The same amount of time and money is spent in preparation whether the crop is light, heavy or a complete failure; this is not a net loss, as the orchard is benefited by the care given it, and subsequent crops will return part of the outlay, but a portion is lost, and must be charged against the orchard.

As an apple-growing province, Ontario offers possibilities which are unexcelled by any other province in Canada. In fact, its geographic position provides some marketing advantages which are unattainable by other provinces. Its commercial producing districts are in the midst of the best of local markets, including Toronto, Ottawa and Montreal and many other cities and large towns; and in addition it is very conveniently situated for supplying the large consuming centres of the prairies; and the port of Montreal is also easy of access for the export markets.

The varieties which are of the highest quality and in greatest demand, both on the home and export markets, do exceedingly well, and can be produced at a cost not exceeding and in some cases less than in other provinces but, notwithstanding these possibilities and advantages, it cannot be said that the apple industry in Ontario has progressed to the same extent as in other parts of the country. This is by no means an indication that the apple growers of Ontario are less progressive than in other provinces—far from it. It is because the conditions under which apples have been produced here differ materially from other provinces where the industry is a specialized one, and where the grower's time is given practically altogether to this one line of endeavour. In Ontario, on the contrary, at least 75 per cent. of the crop is produced on mixed farms, and the grower's time is of necessity divided. Unfortunately as a result, on many farms, the orchard receives little or no attention, it being left entirely to the tender mercies of nature, and no attempt being made to combat the numerous destructive insects and diseases which take a heavy annual toll.

In this connection we are not unmindful of the labour difficulties on the farm. These are always more or less in evidence and during the past few years have reached a serious stage but, if an equal portion of time were devoted to the care of the orchard as is given to other farm operations, the increase in production and the improvement in the quality of the crop would undoubtedly give average returns equal to, or greater than some of the other crops produced on mixed farms. There are some people who hold the view that apple growing and fruit growing in general is a highly specialized industry, and should not be a part of mixed farming. If we intend to follow the same methods of production and marketing as in the past, it would appear that this view is fully justified.

Notwithstanding the unsatisfactory results of the past season, the present condition of the apple industry in Canada and the United States is such as should warrant every care being given to all orchards, small and large, so as to produce the maximum quantity of high quality fruit.

It will be remembered that the returns to the grower from the heavy crop of 1912 were most unsatisfactory, which resulted in the conclusion that there had been over-planting, and that it would be unprofitible to give further care to the orchards. From this time on many orchards were neglected. Again in 1914, with a fairly large crop, the situation was completely disorganized owing to the outbreak of war, which was later followed by an embargo, against exportation to Great Britain. This resulted in further neglect and a lowering of the vitality of the trees to such an extent that many were unable to withstand the severe temperatures during the winter of 1917-1918. Practically the same conditions obtained in the States to the south, although perhaps in a lesser degree. The net result is that in so far as production is concerned, we are where we were at least twenty-five years ago.

The methods employed in harvesting and marketing the apple crop of Ontario are practically the same as those obtaining during the past twenty-five years. If these methods are satisfactory to the grower, there is no need for a change, but it is safe to say that only a comparatively few will agree that such is the case. There have been "off" years when the crop was light and no difficulty was experienced in marketing at profitable prices; the demand was equal to or greater than the supply; but with the recurrence of each medium or heavy crop, the results have been anything but satisfactory, and as outstanding examples of these unsatisfactory conditions we have the crops of 1912-14-16 and -20. The difficulty is that we have not been prepared to take advantage of the big crops.

It is not necessary here to go into details of the methods of harvesting and marketing the Ontario apple crop. These are well known but, in order to compare them with some of the other provinces, I shall refer to them briefly.

The bulk of the crop is graded and packed in the orchard under varying weather conditions, which are very often unfavorable, and by labour provided by the grower and obtained locally. No facilities being available for storing the packed fruit against frost, it is necessary to get the fruit packed and shipped within a very short period, depending upon the season. Owing to the limited time of employment, it has been difficult to obtain skilled labour, and growers have been compelled to compete with each other in securing labour, and to employ whatever local help was available, whether experienced or inexperienced, more frequently the latter. These conditions are both unsatisfactory and expensive. They do not permit of the proper care and attention being given to produce a uniformly graded and properly packed output.

The methods employed in marketing have been various. When the crop is short, there is no difficulty in finding a profitable market There is competition between local dealers and wholesale dealers in market centres but, when the crop is medium or large, there is comparatively little buying, and the only alternative has been to consign. Very soon the large centres become overstocked, while others are often under-supplied. The tendency of individual effort has always been towards large centres, and this is not surprising as there is not sufficient time to develop new markets, and the expenditure would be out of all proportion to the value of the crop.

One of the most outstanding examples of the unsatisfactory results of the present methods of marketing was in 1912, when a great portion of the crop was sold at $1.00 per barrel and less. The crop, although large, did not at any time justify the acceptance of such low prices, which were the result of individual competition and the almost total absence of organized effort.

The past season, although different in some respects from 1912, is another outstanding example.

A small portion of the Ontario crop is also marketed through fruit grower's organizations, operating independently of each other and, although a few of these have been fairly successful, generally speaking individual co-operative effort has not worked out satisfactorily. There have been many co-operative fruit growers' organizations formed in Ontario during the past twenty-five years, but only a comparatively few of these are functioning to-day. The principal cause for the failure of these organizations is evidently their inability to successfully market the crops. In some cases the manager, who is also the salesman, has been selected from among the members, and, although successful as a grower, has not had the time nor opportunity to gain sufficient marketing experience to dispose of the product to the best advantage To engage a fully qualified salesman, who would devote all his time to the work, would be to incur an expenditure out of proportion to the value of the crop.

The methods employed in harvesting and marketing in Nova Scotia and British Columbia are very different from those in vogue in Ontario. The bulk of the crop, instead of being graded and packed in the orchard, is hauled by the grower to the packing house, which has been specially equipped for the work, and where it can be done at a minimum cost. This method is followed both by fruit growers' organizations and dealers, and the work performed by employees who, having fixed standards to guide them, are able to obtain uniformity in the pack which is not possible where the work is done in the orchard. Even inexperienced help very soon becomes efficient under the central packing house system. When necessary, employees can be moved from one packing house to another, and the longer period of employment under this method is a further inducement to engage in the work.

In regard to marketing in Nova Scotia and British Columbia, the satisfactory results of centralized endeavour are so well known that they need scarcely be referred to. There are, however, one or two outstanding examples of what has been accomplished that are worthy of note.

British Columbia's natural market, by reason of her location, is the prairie provinces, where there is keen competition from the Northwestern States, whose growers are also well organized. British Columbia growers did not feel secure in depending upon the prairie markets to take their crop against this competition and they have therefore established sales agencies in many large centres and brokerage connections where they have not their own representatives, so that they no longer feel they must meet the prices of their competitors on these markets if not satisfactory.

Similar results have been obtained by growers in Nova Scotia through centralized endeavour. In 1919, with a crop of approximately one and three-quarter million barrels, they were able to find a profitable market in the United States for approximately 500 cars of low grade and cull fruit, for which there was no market in Canada, and this would have been impossible had there been no central selling agency and no co-operation between growers' organizations and dealers.

Transportation is not among the least of the fruit grower's problems. If adequate facilities are not available to move the crop at the proper time, all energy and money expended in production will have been in vain.

Ontario has always had more or less difficulty in securing a supply of refrigerator cars in big crop years, and last year was no exception. Especially is this the case for shipments to the prairie provinces where refrigerator cars are required early in the season. There has been no co-operation between shippers to cope with this problem; each has acted independently of the other.

The transportation companies are not without their responsibility in providing an adequate supply of suitable equipment, but this responsibility can be more definitely fixed when growers anticipate their requirements well in advance of the shipping season, and so advise the transportation companies.

Nova Scotia and British Columbia growers and shippers have accomplished a great deal through their shipping and traffic associations. Last year when contracts for Ontario apples were being cancelled owing to the inability of growers and shippers to secure cars, British Columbia through the traffic association, co-operating with the railway companies, had an ample supply. The shipping and traffic organizations in both these provinces are composed of fruit growers' organizations and dealers.

One of the most outstanding examples of what can be done by concerted effort was accomplished by the Nova Scotia Shipping Association about two months ago. The market for apples in the United Kingdom had for some time been weakening and prices had dropped to where it was unprofitable to ship unless something could be done to offset this decline. The regular steamship lines were asked to lower the ocean freight rate, but could not see their way to do this. The Association then sought to charter fifteen steamers for straight cargoes, and in this they were successful, and at a rate approximately $1 per barrel cheaper than the rate then being charged. Not only did this benefit the members of the Association, but other shippers as well, as the regular lines subsequently lowered their rate .75c. per barrel.

The Fruit Branch has endeavoured to render every assistance possible in fruit and vegetable transportation, and our experience in this work has shown that one hundred-fold more can be accomplished where the growers and shippers are well organized.

I have endeavoured to outline briefly the methods employed in other provinces in marketing the apple crop and the results obtained and to compare them with those of Ontario. And this brings us to the point of asking, if a selling organization and a transportation organization are esssential to the success of the apple industry in other provinces, are not these equally essential to the success of the industry in Ontario? It is my opinion that they are even more necesary, and furthermore that the fundamental principals and methods governing these are adaptable to Ontario conditions. It is true that the area served by these organizations in British Columbia and Nova Scotia is considerably less than the apple growing area in Ontario, but this should not mean any insurmountable difficulty. It will be noted that in both British Columbia and Nova Scotia, the shipping and traffic associations are separate from the marketing organizations. The shipping associations, composed of growers, selling organizations and independent fruit shippers and dealers, have but one objective, namely, improved transportation and all that that term stands for. The growers and shippers realize that unless they are in a position to solve the many transportation problems, they cannot succeed in marketing.

There are in Ontario to-day approximately fifty fruit growers' organizations, thirty-five of which have confined their operations to apples only. Several of these have not been active in marketing for a number of years. Very few, if any, handle the fruit through a central packing house, the work being done in orchards or in buildings on the premises of each member, and each organization marketing its fruit independent of the other, with more or less success.

While independent co-operative organizations offer some advantages over individual effort, it is practically impossible for these to successfully compete with other provinces and districts where growers are thoroughly organized and have established an efficient central selling association. In view of this growing competition, one hesitates to recommend the further organizing of growers into independent units until there has been established a central selling organization with which they can affiliate and to which they can turn over their product to be marketed.

The tonnage of the organizations now in existence, if centralized, is sufficient to warrant the expenditure necessary to establish an efficient and economical central selling organization. The greater area covered by these units might necessitate the establishing of two sub-centrals, one in eastern and one in western Ontario, both under the control of the central.

Standardization is essential to the success of such an organization. We have certain grades that have been established by Federal legislation which have done much to advance the apple industry, but these are only minimums and permit a great variation in values packed within the grade requirements.

By the establishment of brands which represent specific qualities and which are uniformly present at all times, the grower who produces the highest quality of fruit is assured of receiving returns accordingly. This also establishes confidence with the trade, and permits trading at long distances.

In addition to the establishing of brands, the central would establish sales agencies in sufficient numbers to obtain the widest possible distribution, anticipate the requirements of its members with respect to supplies, estimate the crop, and be prepared to quote prices well in advance of the dates of shipping, co-operate with the transportation companies in the matter of car requirements, in order that a sufficient number of cars may be assembled wihin an accessible area, and direct the operations of the local organizations with respect to harvesting and shipping.

In conclusion, I would say that the possibilities for successful and profitable apple growing in Ontario are unsurpassed by any other province. The present condition of the apple industry is such as should warrant every care being given our orchards but, if Ontario is to take full advantage of these possibilities and present conditions, there must be a change in our present methods of packing and grading. The apples must be handled through central packing houses, and marketing centralized. The trend of prices for agricultural products has been decidedly downward of late while the cost of production has not shown a corresponding reduction. It is necessary, therefore, to reduce the cost of production to a minimum, and to obtain the best results for the production. This has been accomplished by growers in other provinces and districts by co-ordination and centralization of marketing, and I am confident that it will be equally successful in Ontario.

THE ONTARIO NURSERY CONTROL ACT

W. J. Bragg, M.P.P., Bowmanville.

I do not intend at this meeting to make an address. I am simply going to outline some of the clauses of the Act, and I desire that this shall take more the form of a round-table conference than anything else. We have this afternoon both nurserymen and fruit growers, and I am sure you will all be interested in what may come out in the discussion.

In forming this Act, there was no thought in the minds of anyone that it was going to injure the nurseryman, but shortly after the Act was formed and introduced in the House, we found that the nurserymen were taking very strong exception to some of the clauses, and in the different stages, the Act received very severe criticism, so much so that we thought it advisable to withdraw the Act at the last session. I have with me a number of copies of the Act as it was presented to the House, which will be distributed among you.

One reason why we took this matter up and gave it so much consideration was that our friends to the south of us had, in almost all the apple-growing States of the Union, similar legislation with regard to nursery control. In order to show you the interest that has been taken in this matter, I would like to read to you a number of letters which were sent in to myself and the Department of Agriculture from the Fruit Branch in connection with this matter. I received some very strong letters of criticism after this Act was introduced, and I also received some very complimentary letters. The Horticultural Association of the Province of Ontario at their convention held last week in Toronto took this matter up, and although they are not particularly interested in fruit growing of any kind, they felt that something along the line as laid down in this resolution was of very much importance. The resolution reads as follows: "That the Ontario Horticultural Society requests our Legislature now in Session to introduce such legislation to punish misrepresentation and deception in the sale of such trees, scions, bushes and vines as are grown for commercial and domestic purposes, so that the purchaser and grower may be fairly protected from fraud, and that copies of this resolution be forwarded to the Premier and the Minister of Agriculture," etc.

The farmers in the Province of Ontario have complained that nurserymen have come to them and sold stock at fabulous prices, and they found out later that the stock was the very cheapest and not fit for growing at all.

There are some clauses in the Act which I think are rather objectionable, and possibly it would not be amiss to just read the Act and then take it up clause by clause. The fathers of this bill had not anything in their minds in any way affecting our own nurserymen; it was more to protect our people from the foreign nurseryman, and I think we should do all we can to protect our own interests on this side of the line. I think some legislation along this line is highly advisable.

A MEMBER: I can see nothing for it from a nurseryman's standpoint except that there will be a very material advance in prices. My opinion is that the seven year clause is quite sufficient because with the best commercial varieties you can tell at the end of six or seven years whether you are getting a tree true to name. If a man has ever planted an acre of orchard and has planted ten Spy trees, he will know whether he has planted a Spy or not when he has planted it.

There should be a particularly strong clause in this Bill as to the importation of foreign stock, and it has been suggested that the bonding of the dealer who is selling foreign stock should be heavier than that required of the Ontario nurseryman. If a foreign nurseryman is coming to Ontario to sell stock, he must lay his catalogue and price list before the Department of Agriculture for the Province of Ontario before he is allowed to go out and make a sale. Men who are dealing in nursery stock in Ontario have their honor at stake, and they will not deceive the grower; they cannot afford to, and I feel that something should be done to protect the growers in this country against these foreign nurserymen.

I would like to name a committee composed of fruit growers and nurserymen as follows to consider this bill and redraft it for presenting again to the Legislature, and with your permission I will nominate MR. BAILEY (E. D. Smith & Son); MR. WELLINGTON (Stone and Wellington); and E. O. PLUMB (Brown Bros Co.); J. E. JOHNSTON, Simcoe; H. T. FOSTER, Burlington; W. H. GIBSON, Newcastle; P. W. HODGETTS, Toronto.

The committee as named was accepted, Mr. Hodgetts being named as convener.

CARRIERS' PROTECTIVE SERVICE

BY G. E. MCINTOSH, FRUIT DIVISION, OTTAWA.

Neither the time of this Convention nor the patience of those in attendance would permit me to review in detail the many transportation problems with which the Fruit Branch has had to deal during the past season. I can only assure you there has been no slackening in our efforts with the railway executives, the steamship companies, the express companies and the Board of Railway Commissioners, in cultivating a closer co-operation, and a clearer understanding of difficulties between operating and traffic officials and the shippers, for better service.

One of the problems which it is necessary to solve, particularly in this period of reconstruction, when the consumer is looking for a downward trend in the cost of living, is that of preventing waste of foodstuffs. The introduction of a carriers' protective service by Canadian Railways will go a long way towards solving this problem.

By such a service the carriers would accept shipments of fruit and vegetables, say from October 15th to April 15th, inclusive, assume, apart from the liability now provided for negligence and omission in transit, full liability for loss or damage by frost or over-heating, and for such a service the carriers would be permitted to assess such charges as may be agreed upon between the carriers and the shippers, or as may be ordered by the Board of Railway Commissioners.

It is impossible to estimate the loss and waste that occurs each season from frost or over-heating in transit. That it is tremendous is conceded by everyone concerned, especially when we consider the enormous tonnage of perishables that is required to be transported during the cold periods. About 90 per cent of the Ontario apples are moved under these conditions. One railway alone handled 4514 heated cars on Western lines during the season of 1918-19. The service now available—that is to say a heated refrigerator car service on a mileage basis—is fairly satisfactory for short-haul movements, but it is not satisfactory for the long-hauls and the carriers have not so far suggested any improvement for this traffic. I believe, however, they are interested in this matter, but require to collect data upon which they can base reasonable charges.

One instance occurs to me which may throw some light on the amount of loss that is resulting each season from frost or overheating. Sixteen car-loads of Canadian apples, moving to one consignee, on which claims were presented for damage, amounted to $5,892, or approximately $1.60 per barrel. The shipper claimed the damage occurred somewhere between shipping point and destination, and it is generally conceded that a modern refrigerator car, properly cared for under heat, will safely transport perishables during severe cold weather. One Ontario shipper in referring to the present service states:—"We have this day a telegram from consignee on a heated car of fresh apples that went out from a Dominion Atlantic point along with another car. The one has arrived cooked and the other frozen."

It is true, cases such as cited are the subject of claims, and eventually no doubt, are paid. That is not the point, however. Few, if any, fruit producers or shippers wish to sell their product this way. It is most unsatisfactory to bring fruit to the stage of marketing and have it damaged in transit. A carriers' protective service would place definitely the responsibility for such loss, and would assure proper care in transit. It would be as beneficial for the carrier as the shipper. The carrier wants the full earnings of the traffic, and the shipper certainly does not want to be compelled to file claims.

It is recognized, I think, by the fruit and vegetable interests both in Eastern and Western Canada, that a carriers' protective service would be a service distinct from the freight transportation service, and would be something for which there would properly be a separate charge. The carriers would become the insurers, and the charge should be something in excess of the actual cost of the service, but in proportion to that charged for a similar service by railways operating in the United States, and recently adopted on recommendation of the Interstate Commerce Commission. It should not be an out-of-pocket service for the carriers.

For several years, up to and including 1919, a form of carriers' protective service, known as Option 2, was in effect from the Northwestern States, Washington, Oregon, Idaho and Montana, to various States as far east as Illinois, and to points on the Canadian Pacific, Canadian Northern and the Grand Trunk Pacific in Western Canada. In fact the rules of certain carriers governing heated car service, provided for the protection of perishable articles from loss on account of frost, freezing or over-heating, under two so-called Options: (1) The shipper furnished the service and assumed all responsibility for loss not the direct result of actionable negligence of the carrier; and (2) the carrier, at the request of the shipper, furnished the service and was liable for loss not the direct result of actionable negligence of the shipper. When the carrier furnished the service the charges per car in addition to the transportation charges, from Washington points were as follows:

Alberta points	$18 00
Saskatchewan points	21 00
Manitoba points	24 00

In the general revision and consolidation of the perishable protective services in the United States, about a year ago, the Canadian roads withdrew from participation in any protective service against frost, so that on international traffic the carriers' protective service is now offered only on that portion of the haul within the United States and to Great Northern and Northern Pacific points in Manitoba.

Effective March 1, 1920, American carriers, as a result of recommendation by the Interstate Commerce Commission, published what is known as Perishable Protective Tariff No. 1. This Tariff contains under one cover practically all of the rates, rules and regulations governing the handling of perishables from and to all points. In connection with this the carriers formed what is known as the National Perishable Freight Committee, and with this committee the shippers may file complaints and adjustment proposals which are listed for a public hearing. If a satisfactory adjustment cannot be arrived at, the shipper still has the right of appeal to the Interstate Commerce Commission.

There is a feeling of dissatisfaction among the handlers of fruit and vegetables throughout Canada over the present regulations governing the movement of these commodities during the period for which a heated car service is required. Previous to the Fall of 1916 the charges for a heated car service, for fruits, were absorbed in the freight rate, or the carriers may say it was a special service for which they received no remuneration. In any event, an additional charge of 1 cent per car per mile, minimum $2, became effective at that time, which has since been increased to 1½ cents per car per mile.

With the introduction of the heated car service shippers expected the railways would assume the risk of damage. They say the railways are selling a certain service to the public and the responsibility of risk for the safe transportation of the goods should be definitely assumed by the carrier and should not be left to the shipper, dependent upon claim proceedings or upon any uncertain or indefinite rule. In answer to this the carriers say the heating of the car is an expense never considered in the line-haul rate.

At a sitting of the Board of Railway Commissioners in Ottawa, January 7th, 1920, in answer to an inquiry as to whether, under present conditions, the carriers accepted the risk, the representative of the Canadian Pacific Railway Company made it quite clear that they did not.

It was on this occasion that the proposition for a carriers' protective service in Canada was first brought to the attention of the Board, it being submitted on behalf of the fruit and vegetable shippers of the Dominion that the charges then in effect for heated refrigerator car service were ample for the service given; that the railways in Canada should be required to furnish a carriers' protective service for long-haul shipments; and that shippers would not object to reasonable charges, provided the responsibility of the carrier was clearly defined.

The Chief Commissioner intimated that an important question had been raised and one which had his hearty sympathy if it could be worked out properly. It was further suggested that interested parties should make a formal application to the Board. This has recently been done by the British Columbia Traffic and Credit Association, in behalf of the fruit and vegetable shippers of that Province. The application is for an order of the Board, requiring Canadian carriers of British Columbia fruit and vegetables to provide a service such as outlined. This has been supported by the Western Canada Fruit Jobbers' Association, with a suggestion that it be made applicable to all Provinces.

If Ontario shippers feel that it is in their interests to have a carriers' protective service, support should be given the application and a request made that the service be available for simailar shipments from this Province.

In the evidence at Vernon, B.C., it was submitted that the way to provide against the risk of damage by frost or over-heating is through insurance; that the regular insurance companies have no provision for this type of risk, and both Canadian and American companies had declined to consider the business. It is unquestionable that as the carriers furnish the equipment, furnish the heating service, and have the shipments under the personal oversight of their employees at all times, they are the logical party to undertake the insurance. This question was fully considered in the Northwestern States, and resulted in the carriers voluntarily undertaking the service and further voluntarily continuing it after four years experience.

Statements filed with the Interstate Commerce Commission show that in the case of perishable freight moving to some 26 wholesale houses in Western Canada during the period of October 15th to April 15th, 1917, the percentage of claims paid to freight charges was 2.48 per cent and the percentage of all claims filed to freight charges was 2.77 per cent. This, it will be noted, was a period during which the carriers' protective service was in operation, and the percentage of claims filed to freight charges was very low.

The Interstate Commerce Commission says:—"No method seems to be open to the carriers to avoid claims for damages arising from the freezing of potatoes in winter, except by offering a protected service at reasonable rates and under their own full responsibility for the results, giving the shipper at the same time the right, without additional charge, to assume the liability himself by providing his own protection, the carrier to remain liable, of course, for any loss or damage resulting from their own negligence."

Further.—"The alternative rule suggested by the defendent carrier, and now published in the tariff with this Commission, is in our opinion fair and reasonable, in that it allows the shipper a choice between shipping his traffic at a lower rate under a special contract, by which he becomes his own insurer against weather loss and damage, or making his shipments under terms imposing the full responsibility upon the carrier."

In suggesting that Canadian carriers become insurers there is no new principle involved. The Canadian classification provides that in the case of a shipper declining to ship at "Owner's Risk" any article shown to be so carried, the articles will be carried subject to the terms and conditions of the bill of lading at "Carrier's Risk," on payment of 25 pe rcent. over and above the rates specified. The carrier thereby undertakes to accept the risk of weather, or as the case may be. It is accordingly the insurer. The principle is therefore not new and should not in any way conflict with railway operation.

It has been suggested that this provision in the classification covers the situation. That is not the case, except where commodities are moving under class rates. Fruit and vegetables, as you are aware, move under special commodity tariffs and at these rates do not share in the service provided by this classification regulation.

It would not be 25 per cent on the commodity rate, but 25 per cent on the class rate. For instance, under this regulation, a carload of apples from an Ontario point to Winnipeg, would cost the shipper, in addition to the regular freight charges, the difference between the class and the commodity rate, plus 25 per cent on the class rate, a total of $186.90 per car, or 15.1 cents per car mile, if the shipper insisted upon a bill of lading without the notation "Owner's Risk." It may therefore be said there is no protective service offered for the fruit and vegetable movement, because the additional charges are more than the traffic will bear. "All that the traffic will bear" is a good thing for the railways, but "more than the traffic will bear" is a bad rule for everybody.

For comparison reference is made to the following figures showing the relationship now existing between the commodity and class rate for apples from Ontario points to representative receiving points in Manitoba and Saskatchewan:

APPLES——RATES IN CENTS PER 100 LBS.

Destination	Mileage	Com. Rate	Class Rate	Class Rate Plus 25%	Difference per 100 lbs.
Winnipeg	1,232.4	92	123.5	154.3	62.3
Portage la Prairie	1,288.0	105	131.5	164.3	59.3
Brandon	1,365.5	112	137	171.0	59.0
Moosomin	1,631.1	118½	154.5	193.1	74.6
Regina	1,768.0	137½	167.5	209.3	71.8

The difference in charges is from 59 to 74.6 cents per 100 lbs. A comparison with the rates effective for a protective service for similar distances over United States lines, which are approximately from 7 to 10 cents per 100 lbs., indicates the relationship between these charges and what American railroads consider practical for shipments of a similar character.

Assuming that the classification did permit fruit and vegetables to move at commodity rates, plus 25 per cent. for a clean bill of lading without notation "Owner's Risk," the result would be as follows, on shipments from Ontario points.

Destination	Miles	Com. Rate	Com. Rate plus 25%	Difference per 100 lbs.
Winnipeg	1,232.4	92	115	23
Portage la Prairie	1,288	105	131	26
Brandon	1,365.5	112	140	28
Moosomin	1,631.1	118.5	148.1	29.6
Regina	1,768	137.5	171.8	34.3

The difference in this instance is from 23 cents to 34.3 cents per 100 lbs., as compared with from 7 to 10 cents per 100 lbs. for corresponding distances under the protective tariff effective on American lines.

The application therefore now before the Board of Railway Commissioners, (and it should probably be decided at this meeting whether it will have the support of Ontario shippers) is for a carrier's protective service such as will give a measure of stability to the fruit and vegetable business in a direction in which these industries, so far as winter marketing is concerned, are now practically at the mercy of the weather and the carriers.

In presenting the case for the British Columbia shippers, it was pointed out that it is not the actual loss on any particular shipment that is the real concern, but rather the element of risk, which debars the distributors from purchasing as freely as the production and consumption demands. The application is to secure a working arrangement that will meet the situation. The service should be available from October 15th to April 15th, inclusive, each season, and effective from and to such points as trade conditions demand.

It would be more or less experimental for a time at least, and if granted, either voluntarily or by an order of the Board of Railway Commissioners, the charges should be sufficient to show the carriers fair results under average conditions, and at the same time not too high to be a service.

The general opinion is that the charges should be on a flat basis. That is to say, shipping territory should be blanketed, and rates fixed to destination by provinces. This is a matter which should have careful consideration. Charges at present in effect between points in the United States are arranged in a similar way.

The following schedule shows the charges for a carriers' protective service from Wenatchee, Wash., to different states also the heated car service rate from Ontario points to points of similar mileage, at "Owner's Risk":—

From	Rate Basis	Mileage	Charge Per Car
Wenatchee to Glacier Park, Mont.	5c. per 100 lbs. all West. Montana.	529	$17.50
Sarnia to Montreal	1½c. per car per mile.	505	7.50
Wenatchee to Glasgow, Mont.	6c. per 100 lbs. all East. Montana.	858.3	21.00
Forest to Fort William	1½c. per car per mile.	860.1	12.90
Wenatchee to Northgate, N. D.	7c. per 100 lbs. all N. D.	1,168	24.00
Clarkson to Winnipeg	Flat rate from points West Montreal.	1,248	16.50
Wenatchee to St. Paul, Minn.	8c. per 100 lbs. all Minn.	1,610.4	28.00
Clarkson to Regina	Flat rate from West of Montreal.	1,590	22.50

Deducting the present charges for heating, which Canadian Railways say is a just and reasonable charge, and which has been authorized by an order of the Board of Railway Commissioners on request of the carriers, would provide, if applied to the American traffic, an insurance fund of roughly $9.00 per car to Montana points; $6.50 per car to North Dakota points, and $4.00 per car to Minnesota. It is doubtful if this is sufficient to protect the carriers. On the other hand the American railroads were recently refused authorization of proposed increased charges for the service.

British Columbia shippers, through the British Columbia Traffic and Credit Association, are on record before the Board of Railway Commissioners as favoring charges as follows:—

Alberta points	$30.00 per car
Saskatchewan points	40.00 per car
Manitoba points	50.00 per car
Ontario points	60.00 per car

Deducting the present heating charges of 1½ cents per mile, this would provide an insurance fund roughly as follows:—

Alberta points	$22.00	per car with average haul	530 miles.
Saskatchewan	27.50	" " "	830 "
Manitoba "	33.00	" " "	1,130 "
Ontario "	36.00	" " "	1,600 "

The charges suggested by the British Columbia shippers are approximately 64 per cent. higher than those proposed by American carriers, but refused by the Interstate Commerce Commission for lack of substantiation, and nearly 100 per cent greater than the charges now effective on American lines.

In asking the railways for a service which entails increased operating costs, we must consider that while gross earnings of Canadian railways were stimulated by the recent rate concessions, nothing appears to have happened of a favorable nature in respect to net earnings. As a matter of fact they have actually declined. Adequate service can be provided only in two ways: out of earnings, or by borrowing. If a carriers' protective service for perishable foodstuffs is a necessity in Canada, and I agree with the finding of the Interstate Commerce Commission where they state:—"We are convinced that there is a vast opportunity in protective service against both heat and cold for conservation not only of carrier revenues, but of food products of the nation"—then we should be willing to pay a charge which will protect the carrier against loss and assure an efficient service. It would appear, however, even though the risk may be a trifle greater on Canadian traffic, that a charge of nearly 100 per cent. greater than that which the Interstate Commerce Commission evidently think is just and reasonable in territory somewhat similar, would be a rather generous attitude to assume. The Western Canada Fruit Jobbers' Association have suggested, considering the trifle more hazardous territory covered in Canada, the rate here should be approximately 25 per cent. above the American rate. Whatever the charge may be, it should be fixed on a per 100 lb. basis for certain mileage areas.

The references thus far relate to shipments moving in insulated or refrigerator cars. There must always be a proportion of the fruit and vegetable tonnage moved in box cars. It is not always possible for the carriers to supply insulated cars. This is a serious matter for the industry. as the risk of damage by frost is present with box car shipments from the early part of October on. If a considerable portion must move in this class of equipment, then some arrangement for protection should be worked out. The only practical way perhaps, would be for the carriers to supply lined box cars when refrigerators are not available, and provide the protective service, at a very slight advance, if any. over the rate charged on insulated. or refrigerator cars.

The question of responsibility of the carriers to furnish proper equipment for the commodity tendered enters into this phase of the matter, therefore careful consideration of this point is suggested.

It would appear, under the rules provided in Perishable Protective Tariff No. 1, which governs shipments moving under carriers' protective service in the United States, that the carrier is wholly liable for proper equipment no matter what equipment the shipper accepts in lieu of what he orders.

Rule 80 of this Tariff reads:—

> "(a) On carload shipments shipper must declare in writing in shipping orders and in bills of lading at loading station whether or not the shipments are tendered for transportation, under refrigeration, non-refrigeration, icing, ventilation or under protective service against cold.
>
> Note—If the shipper, under the provisions of Rule 35, orders a car of a particular type and specifies the type of service desired, in accordance with Rule No. 80, and the carrier is unable, within a reasonable time, to furnish the type of car ordered, the shipper may accept a car of another type without waiver of his right to the kind of protective service which he has specified."

Whether a carriers' protective service should be optional or obligatory on the tariff, is an extremely important matter for consideration. Personally, I think the service should be optional. The present mileage-heating service at "Owner's Risk" should be retained. It might be that a large number of shippers would not want to pay an additional rate for the insurance; they might prefer to carry the risk themselves. The American lines, after four years, are retaining the optional feature of their service, and Canadian shippers should not be deprived of the privilege of carrying their own risk if they wish to do so.

Briefly, the request of the shipper to the carrier is:—"We want something reasonable, and are willing to pay a reasonable charge for it."

A MEMBER: What is the minimum now?

MR. MCINTOSH: 30,000 lbs. It is now 35,000 on shipments from British Columbia to the Prairie Provinces.

MR. JOHNSTON: I do not think our business will stand the high freight rates that we have to pay at the present time. Some arrangements will have to be made whereby the products of the orchard will be carried safely and arrive at their destination in proper time. We all know that when we ship in iced cars the companies do not carry out their contract and keep the cars well supplied with ice, because our fruit does not always arrive in proper condition. I think we should have some protection in that matter.

Moved by MR. CHAPIN, seconded by MR. JOHNSTON:

"That the following members be a committee to meet at seven this evening to consider the matter of freight rates and transportation generally and report: Messrs. Maycock, J. E. Johnson, Bragg, Lick, Scripture, McIntosh, Chapin, Foster, Jemmett, Blaikie, Bunting, Drysdale, Carpenter and Bailey."

MR. MCINTOSH: The Niagara Fruit Growers' Association in co-operation with the Ontario Fruit Grower's Association took every possible opportunity to protect their interest before the Railway Commission in the Express Rates case. Several representatives were sent to Ottawa to attend at the final sitting, and I can say that it was largely due to the representation from the growers that we have been treated as fairly as we have in the order of the Board. The Express Companies asked for an increase of 40 per cent., and they were only allowed 20 per cent. on fruit, and to my mind that was very reasonable consideration. It is the first increase in express rates, and I think the fruit industry has been well taken care of.

THE MARKET SITUATION IN GREAT BRITAIN.

HON. MANNING W. DOHERTY, Minister of Agriculture, Toronto.

I am intensely interested in the fruit industry, although I am not a fruit man, being practically altogether in the business of live stock, having only four acres of bearing orchard and four acres coming in; but I have for years watched the development of the fruit industry in this Province. When at the Guelph College back in 1895, and up until 1904, I realized that a great deal of effort was being expended by that institution and its staff and the Federal Department in their attempts to develop the fruit industry in this Province, and I am free to say that I have from time to time been a little discouraged in regard to the real progress which the fruit industry was making in the Province, considering our natural advantages. I have all along felt that possibly in this branch of our industry, as in other branches of our industry, that we have been devoting too much time—or shall I say, not enough time, to one end of the problem, and consequently forced to devote too much time relatively to the other end. Back in the years gone by, the efforts of the institution were practically directed to telling fruit growers how to grow fruit. This was good work, necessary work and a valuable work, but it is only possible to make progress to a certain point unless you provide the other end. I have all along felt that we have given too little attention to the marketing end of our business and too much to the production end. If you create a situation where the demand is in excess of the production, and where it is possible for those engaged in that line of industry to depend each year on a reasonable profit upon their investment, if you in other words stabilize the industry you won't have the same difficulty in disseminating any information which you want to spread around, and you won't have to shove your technical knowledge down the throats of the people in the industry, because if you make it profitable they will seek after it. I feel that the Federal and Provincial Governments should leave nothing undone to provide every proper facility for the marketing of our crop.

Our fruit industry starts early in the Spring, and at first the fruit comes gradually but in a very few weeks the rush of fruit is on. We have been conducting the industry every man for himself and the fruit is tumbled on to the market here, there and anywhere during the rush season until it tapers off in the Fall. As a result a lot of fruit reaches the market, some in good condition and some in poor condition and a quantity is lost between the orchards and the consumer. To my mind we should take a lesson from the lumberman and build a dam or two so as to regulate the flow and so that the fruit will reach the consumer, no matter where he may be situated, and so that our fruit will be evenly distributed according to the powers of absorption and consumption at every point.

This can only take place and be accomplished by co-operation and organization, and I look forward to a few years of life yet, and I hope to be able to live long enough to see the fruit industry in this Province in such a position that there will be no glutted season and so that there will be no glut in Toronto today, and Kingston bare of fruit. So that there will be no glut at Montreal, and no fruit in Port Arthur or North Bay, and so that there will never be a time that we will have hundreds or thousands of dollars' worth of fruit not marketed at all because the channels of trade cannot take care of it.

While I am a firm believer in the possibility or potentialities of co-operation, I am of the opinion that the most successful co-operative organizations that are in existence anywhere in the world are those that are conducted by those actually engaged in the business and not from Government aid. I believe it is a duty of the Federal Government and the Provincial Government to do everything in their power to assist in these organizations, because it is a matter of national importance.

I would like those who are not engaged in the fruit industry to realize that it is never an advantage to the consumer of natural products to have that product placed at his disposal below the cost of production. That statement might need a little argument to prove, but if I had time I could prove it to the satisfaction of any reasonable man. If the consumer buys a basket of peaches for 25c. that costs 50c. to produce, he thinks he is making 25c. but he is not, because that price reflects back on the industry and there is going to be a day that he will have to pay that 25c. and more; because the supply will decrease to a point where he will have to pay a great deal more.

I had the pleasure of spending a few weeks in the Old Country last Fall, and I was very anxious to acquaint myself with the situation over there. I have placed over there as our Agent-General a man who is intimately acquainted with all branches of agriculture in this province. In certain seasons of the year the efforts of the staff there, are directed towards emigration. There is a portion of the year when I have felt that their efforts and services could be very well used to further the development of trade in our agricultural products in the old land; because I realize that we have over there a market that can take all we can produce for years and years in this country, no matter how rapidly we may develop. That is true not only in regard to fruit, but is also true in other lines of agricultural products. Our staff over there should be used to develop a market for agricultural products. The Federal Government have officials over there, but they have the whole Dominion to look after and Ontario is looked upon as a kind of big brother that can stand on his own feet and the officials of the Federal Government feel that the less wealthy provinces have first call upon their services.

I was astonished when over there to see the degree of perfection to which the Governments of other countries had developed their system of marketing. The system of marketing of New Zealand, Australia, Denmark and Ireland are wonderful and in their development they have spent considerable money and effort. Their product goes on the market graded to a nicety. Their grade is always absolutely reliable. If you buy a ton of New Zealand butter of whatever grade it may be. you can ship it to Glasgow and you can be sure that you have got exactly what you bargained for. The same is true with regard to New Zealand mutton. The New Zealand mutton was formerly handled by private concerns anxious to make dividends and who were not so keen to see that the product was up to the market. This was carried on to such an extent that New Zealand found herself face to face with the loss of their trade in chilled meat, and she sent to England Sir Joseph McKenzie, who had formerly been Minister of Agriculture, and he spent seven years in England and he got the New Zealand trade back on its feet, and to-day they watch the quality of the product and no private concern is allowed to put carcases on the market that will injure the quality of their mutton and lamb. We have got to take some such steps. I have had a great admiration for the private concerns who have had the nerve to go out and trade in other countries, but the reputation of our products is of such prime importance that I am of the opinion that every country should insist that agricultural products for export should pass through Government grading stations so that there will be no danger of any product going on the market of an inferior quality.

While in England I visited Covent Garden market, and went out in the country and talked with the fruit growers and men in the counties in England where they grow considerable quantities of apples. The first thing that struck me was the price of the fruit; it was so high. I bought apples on the Strand that were picked and packed at Thornbury, Ont., and I paid at the rate of $28 a barrel for them. I saw Canadian apples sold in the Covent Garden market at from $16 to $18 a barrel. I went to the Old Country rather unexpectedly, and having only two men on my farm, and a lot of fall ploughing to do, I decided that the best thing to do was to sell my apples on the tree, Spies, Greenings and Russets at $2 a barrel for No. 1. I knew that apples were selling here from $5 to $6 a barrel. The point I want to make is that it is too bad that the Canadian grower should get such a small price when the consumer in England is paying 10d. a pound. You can quite understand that the Englishman is independent. I was in the house of a very wealthy man down in Surrey, and he told me he did not like to be imposed upon. He travels in this country sufficiently to know what things are selling for here and he told me he refused to allow his people to buy apples at the price they had to pay.

I have been warned that there is a ring over there that is very strong, and that the man that went up against it would be very sorry. I want to say to the fruit growers that you need not be afraid of any ring, no matter how big it may be; because if you control the source of supply, and if you conduct your marketing operations on sound and safe business lines, there is no ring on earth that can beat you.

I was surprised to find that South Africa was placing peaches on the British market. Last Saturday I was in Winona, and a gentleman there said he was much interested in South Africa because he was the second officer on the ship that carried the first load of peaches that ever came from Africa to England, and he said he was on the line for seven years and watched the trade grow. There is a ready market for peaches in England, and they receive 20c. to 50c. apiece. Their peaches are fairly large, but the quality does not appeal to me like our Ontario peach. They have not got the flavour of our Ontario peach, but they are doing tremendous business with them in England, although it takes twenty-six days to get them from Africa to England and they have to cross the equator. With proper organization our orchards are not more than ten days from the consumer in England, and I feel that with a little care, energy and enthusiasm we can place peaches on the market over there at prices that will give a profit to the grower. Think of the tremendous consuming population that they have at Manchester, where within a radius of a very few miles there are eight million people, and London with about the same population. An apple grower in Kent told me that they had difficulty in marketing the fruit grown in England because of a water-tight association or ring that controls the market, and as a result they established their own stores opposite Covent Garden, and they are selling their fruit there to-day, and they are making money and are receiving from 50 to 100 per cent. higher than they formerly did.

In conclusion, I want to say that I look to the building up in this province of an organization that will take care of this industry, and I want it distinctly understood that in the development of organizations of this kind it will not result to the injury of any legitimate industry. I look to the development here of a safe, sound, sensible and strong organization for the handling of our fruit, and I want to say that you may rest assured that at any time my services will be at the disposal of the fruit growers, and anything which I or the officials of my Department can do in co-operation with the Federal Government for the building up of the fruit industry in the province will be gladly done. There never was a time in the history of this country when every branch of our agriculture should be stimulated and developed to the utmost as right now. We have big problems ahead of us and over us, and the only possible way that we can discharge our obligations and solve these serious problems is developing each and every branch of agricultural industry and stimulating it to the utmost and by cutting clear channels of trade so that there may be an outlet for all these products at a price which will make it reasonably profitable to those who are connected with the industry.

THE PACKAGE SUPPLY FOR 1921
BASKETS AND CRATES

J. M. WALLACE, OAKVILLE WIRE BOUND BOX AND VENEER CO.

Your committee has requested the company I represent to give you some data which we may have available regarding the basket supply situation for the coming season. That is one of the vital questions with the peach grower, the early apple grower, vegetable growers and small fruit growers; they are the particular phases of the fruit industry that would be interested in my conversation. I take it that the main point you want some light on is: Are we going to be held up as we were last year for baskets? You were held up last year because the supply was not in the country. The price this year will be quite a factor in your costs when you go to market your fruit. I am not in a position to say whether fruit will be lower than last year, but I am in a position to talk from the cost end of the baskets, and give you some information as to the available supply for this year, both in the Climax and other packages.

We will take first the 11 quart and 6 quart baskets, which are the main packages used in the Niagara Peninsula, the Burlington and Oakville Districts. At Clarkson they are more interested in the berry basket. At the commencement of the season of 1919-1920, I made a close inventory of the available stock of baskets on hand—about the 15th of October, 1919—to see where we stood. I estimated there were about 2,000,000 baskets in the manufacturer's hands and in the hands of the growers. The manufacturers last year produced about 7,400,000 Climax baskets, which made a total available supply of about 9,400,000. I would judge there was fruit packed in packing boxes, bushel baskets and destroyed on the trees or ground an equivalent of about 1,500,000 baskets. In other words, we should have had 1,500,000 more baskets than we had last year. That would mean that about 11,000,000 baskets should have been available for last year's crop, which was a very large crop as you all know. You may ask why we did not have these baskets available. I want to present the manufacturer's side of the case for last year. You are more or less conversant with the fact of what happened at Oakville. We got hit by a fire on the 20th of March, and previous to that we were only about 50 per cent. capacity due largely to the adjustment of machines to the new basket. At Burlington we were right up to capacity, but the other factories throughout the country were up against the labor condition that developed as spring came along, which was not equalled at any time during the war. We could not get labor to build baskets last year at the price the baskets were sold at. The other manufacturers did their best with the labor they could get, and paid for it at the price the baskets were sold for. So far as we were concerned, we filled, both in Burlington and Oakville, 100 per cent. of our orders at the old price. Labor, or rather the lack of labor, was the reason we did not have an adequate supply of baskets last year.

Now you may ask the question: If we have another such crop next year, can the manufacturers supply the baskets? I would say, yes, providing the manufacturers have a chance. Normally the requirements for baskets is about 11,000,000. Our factories, if they are given half a chance, can manufacture 12,500,000 baskets with the greatest of ease, and that is just including the 23 factories that are in existence in old Ontario, and excluding the British Columbia capacity. The Ontario factories can manufacture a little better than 1,000,000 baskets a month, providing they are allowed to manufacture that way. But are you allowing them to manufacture that way? I wish some more of the Niagara Peninsula men were here that we might develop this thought further.

I have only been in the basket business about seven years, but I have made a very thorough study of the situation, and I find one of the great troubles is that the grower does not co-operate with the manufacturer. We hear a lot about the manufacturer holding up the grower for a big price for baskets. I want to dispute that statement. The grower is responsible to a great degree for paying more money than he should for his packages to-day. I did not come here to criticise; I take it you brought me here for some information that might save you dollars, because when it is all said and done, it is the dollars that you all work for, and that we all work for.

I want to take for an illustration a factory standing idle that has got to run in two months time. You have got to maintain your superintendent and possibly the manager or foreman, and your teams and so on. Your overhead goes on all the time. You have to charge it up when you start to manufacture. If on the other hand, you start to manufacture on the 1st of October or the 15th of October, and store your baskets, you must have a storehouse as big as this hotel for every factory. We have two storehouses, one is 140 ft. by three stories high, and the other is 200 ft. long by two stories, and we can fill these in a short time. When they are filled, it means we have to handle those baskets in there; it is an added cost of about $1 a thousand. Then the basket man has to insure those baskets, which also costs considerable money. We have to carry the interest on that money until next October or November or December, which you have got to pay for, because no business can operate continuously on a philanthropic basis; it has got to be a real business proposition.

If a fruit grower will come in in the fall and pay for his baskets, or say, "I will take delivery now," we can give him 15 per cent. off, and be ahead of the game, because we can keep down our overhead by spreading our manufacturing more systematically all through the year. Instead of that we have to penalize you later on for this extra work we do, and we could keep down the price if we had that privilege.

I made up my mind that this year, with baskets so high, it was not practical to store our houses full. It was not sound business, because where you only use from one to five thousand, in the two plants we would store half a million baskets. We do not mind a little gamble to help you, but we do not want to take all the load. The point is you can make a substantial reduction in the price or cost of your baskets, if you will order early and allow the manufacturer to deliver in time so that he can keep his plant systematically running all the year.

A manufacturer would very much sooner shut down his plant in September or October if there was an over-supply, than he would in the winter months, because we can manufacture probably 55 per cent. more baskets in the fall and in the winter months than we can in the summer months, due entirely to the fact that in these towns, there is a lot of labor that goes on the farms in the summer, but which can be used in the winter in the basket business. We cannot afford to pay a competitive wage, in a great many instances, and the result is in the summer time we cannot manufacture anything like the capacity we can in the winter, which is another reason why the growers should give the manufacturers some consideration because all these things enter into the costs of packages.

Touching on the cost of packages, when I went into the business, the first year I put in a stock of logs which cost me $18.50 in my yard, and they were good logs. In the last two or three years, the increase would amount to over 100 per cent. on freight. We used to get the logs within 25 or 50 miles; now we have to go from 75 to 275 miles to insure our supplies. We take out about a million and a half feet every winter of hardwood logs, and therefore we have to scour the country pretty widely. To-day logs cost f.o.b. the cars at any shipping point about $35, and last year when the basket situation was so bad, I paid as high as $40 a thousand freight alone on logs, whereas I used to buy the logs at $18.50 landed in my yard, and baskets then were selling at $35. There was more money in them then than to-day when they are selling at $100.

Basket bottoms that we used to buy at $8.50, last year they wanted $25 and $26 for, which is 300 per cent. advance. Leno that I bought in 100,000 yard lots at 3¼c., last year they charged us 13⅜c. a yard. The Government requirements for baskets mean that we must have closer supervision and throw more baskets to the discard, and when you throw 25 out of every thousand, it means money. All these factors enter into the cost of the baskets. And it is very difficult to get timber. Last year after our fire, I was able to sell our logs that were at shipping points and which I could not possibly use early in the season at $80 and $90 a thousand f.o.b. the shipping point.

At the Fruit Growers' Convention at Rochester about a month ago, the growers were contracting and buying at that time their baskets at $135 a thousand for the 12-quart size, which is equivalent to our 11-quart basket, nested. As compared with that we are charging you $130, less $6 if you will come to the factory and get them, nested; that would be $124. Then we allowed you 15 per cent. off, last fall, if you would take the baskets and pay for them, which would mean another $20 or a little less, so your baskets would only cost you, with the covers, about $105 or $106 as against a price of $135 across the line.

I can ship baskets to the United States and make as much money out of them as by selling them to our own growers, because over in Penyon, the biggest factory of Climax baskets, they are selling at $150 a thousand, nested, and they wanted to buy some from us. I believe the manufacturers in Canada are treating the growers fairly. Are the growers treating the manufacturers right in withholding their orders and allowing the manufacturers to remain shut? When you want baskets next year you will pay the price.

MR. FLEMING: You say you can sell in the States; there is the exchange to be taken into consideration.

MR. WALLACE: Baskets are quoted at $150 a thousand, nested; our price nested is $124, so there is $26 a thousand difference. Then if we allow 10 per cent. commission to a commission man over there, it brings that down to about $112. Our price would be $112 plus 25 per cent. duty, which would be $137.50.

In other words, we could land them over there at $137.50 paying the duty going in, and that allows the man on the other end $12.50 to handle them, and we would be in about the same position.

What is the position of baskets coming over here? They are booked out there at $135 we pay 27½ per cent. duty or 30 per cent. duty on $135, which would be $40.50, and that makes $175.50, plus the exchange on $135 at 15 per cent. say, $20. In other words, baskets coming over would cost you $195 and then you have to pay the freight and the exchange on the freight so that your baskets would cost you at the minimum $200 a thousand f.o.b. here. So you cannot think we are treating you unjustly when we offered you baskets at $106 a thousand last fall, and you would not buy them.

To show you the business ability of some of the co-operative associations, I will take you back three or four years. Take the Clarksons Association. They call for their tenders for the 1st of October. They know what baskets they are going to require, and so does every grower. When their tenders are in, we book their orders, and they get that 15 per cent. off. We put in the baskets at Clarksons at $85 a thousand this year as against the prevailing prices of $100. We have already put in about $30,000 worth of deliveries to Clarksons, because we can run our shop and get all the help we want.

I want to touch on the quart berry box for a moment. There is used in Canada at the present time about 9,000,000 quart berry boxes a year; that is the average consumption. Last year we were short, and there was carried over possibly 1,000,000 from the year before. We only manufactured last year about 8,500,000, and there are no quart berry boxes in the hands of the farmers, the growers, or the manufacturers, so it is up to the manufacturers to build a sufficient quantity for this year's requirements. I believe quart berry boxes are going to be scarce—they are going to be very scarce—and the reason is that labor has got beyond the manufacturers. We used to pay a girl $1 a day to build quart berry boxes; and she would turn out 1,500 quarts with a tacker. The day has gone by when you can ask a girl to work for $1 a day. It is not right nor fair nor just under the present living conditions. They do not want to do piece work, and we cannot organize and get production through on that basis. We went out of manufacturing altogether at Burlington and Oakville just for that reason, but we got two other factories where we make quarts entirely, and by starting the 1st of October and never stopping we got out five or six million. We handle from 50 to 70 per cent. of the quarts used in Canada. This year we find we will have to increase the production by making quarts in both Burlington and Oakville.

We submitted a package to the Fruit Commissioner yesterday that he considered would be satisfactory as a quart berry box this year. It will be sold at the same price as the regular wooden quart.

In connection with the 27-quart crate, we were unable to buy shooks the last two years, and we have been making a veneer crate out of the waste material from our box shop, and that is why we are able to sell at our low price. We put 40,000 of these in Clarkson, and each man I have spoken to is satisfied with the crate. It cost the Clarksons Fruit Growers' Association 32c.; it is 33c. for the shooks alone.

At Burlington we are making an apple package that might interest you. We used to make a market hamper, but we found that it was not satisfactory; the apples in the bottom got bruised, and they were not stiff enough in the sides.

Then we started to make this package, and the business has gradually increased. Last year we made from 8,000 to 10,000. Our manager at Burlington said they shipped a car, first of hampers, then of barrels, and then this package, and the word came back: "Please ship the hamper with the board bottom when next shipping." So they must have found the fruit arrived in good condition. The package is straight up and down with a solid board bottom reinforced, and the package is well protected.

Q.—How much does it hold? A.—I have never measured it, but I would say practically a bushel.

Q.—What is the price? A.—It all depends on the quantities and the shipping point, and the time we get our order.

Q.—What is it worth to-day? A.—35c.; at the factory 34c.

Q.—Does that include the top? A.—Yes.

Q.—And the fasteners? A.—No.

Q.—How do you prevent depreciation in piling one on top of the other; the bottom of the package is smaller than the top? A.—Yes; but you pile them on the rim, and the rim is sufficiently rigid to take the weight.

Q.—What is the price of the 11-quart basket at the present time? A.—It is $100 per thousand, delivered in the grower's barn. We make a reduction of $6 per thousand if the grower will come and take these baskets from the factory. If he pays for the baskets now, we allow a discount of 10 per cent. per annum from the date of his payment, computed until the 1st of October. He can take this discount if he wants to avail himself of it.

Q.—Do you pay the freight? A.—We will pay the freight to the shipping point in carload lots. That would be nested.

Q.—In the event of a grower buying these baskets the 1st of October, who looks after the insurance of them in his barn? A.—He has to protect himself if they are out of our hands.

Q.—They are still your baskets if they are not paid for? A.—Once they are delivered we have no control over them.

Q.—That is the price without covers? A.—Without covers. The slat covers are $30 per thousand, and Leno covers $40 per thousand.

BARRELS

W. A. Fraser, Trenton Cooperage Mills, Limited.

Mr. Wallace has pretty well covered the general features that have governed the manufacture of packages for the last two years.

The barrel situation must be looked at from two angles: first, from the standpoint of the grower or the buyer or user who purchases his own stock and makes his own barrel; and second, from the standpoint of the distributor, and that is where I am interested. Our contention is that the distributor must be protected or he is not going to stay in the business. He is essential to the trade in its present shape, because if the distributor does not purchase his stock and make apple barrels for the grower, the grower in 90 cases out of 100 is not going to have the package when he wants it. If the grower at the proper time of the year will make his purchases, or give the manufacturer a chance to anticipate the supply he will be expected to deliver, he can purchase his stock at a minimum price, make his barrels himself and have them when he wants them. On the other hand, if he is willing to go to his local cooper and place an order with him even at the time of the year when the apple has started to develop, he will be assured of his barrel supply at a reasonable price. Those are the essential features in the situation as I see it from the general standpoint.

In 1920 there was undoubtedly a very acute shortage of apple barrels. That shortage developed through different circumstances both in the United States and Canada, and it was a question of supply and demand which resulted in a high price. In 1921, the situation must change. It has changed inasmuch as there has been a reaction in the price of most commodities, and cooperage stock has decreased in price. Those who want to purchase cooperage stock can do so at quite a nominal figure. On the other hand, if they want to follow the second procedure and buy barrels from their cooper, if they will get together and size things up and gamble on their requirements, they can get their packages at a nominal figure. It is up to the grower to a great extent to co-operate not only with the manufacturer but with the working cooper.

As far as prices are concerned, we won't again get back to pre-war conditions. Prices have materially declined but we cannot get back to pre-war conditions, because there are so many things that govern the cost of production to-day that did not exist before 1914, that demand additional expense. We have the Workmen's Compensation Act. Last year we paid some $4,200 to get our men under that Act. We have a 45 per cent. increase in freight rates. The cooperage manufacturer is confronted by the fact that he has purchased his raw material for the past year under war conditions, in competition with men in the basket business, cabinet business and other businesses where that class of lumber is used. Therefore the Canadian cooperage manufacturers to-day are carrying a stock of raw material that cost them as much as the stock of 1920, and they do not expect to make any money out of it. The prices this year are competitive, and they will be competitive whether the manufacturer makes a profit or not.

As far as labour conditions are concerned, that point was covered by Mr. Wallace. As far as the supply of cooperage stock for 1921 is concerned, owing to the very mild winter in Canada, there is less stock in the mills than at any time since I have been in business. In fact there are only two cuts landed at the mills. We are not only manufacturers but jobbers, and we buy extensively in the United States to take care of our Canadian business. As jobbers we are quite willing to gamble on a job, and the user of the apple barrel must be willing to help us gamble or give us an inducement to gamble inasmuch as they will require a certain amount of stock. If the growers will gamble on two-thirds of their requirements, we will gamble on the other third, and guarantee they will have it when they want it and also set the price on it so that they will know what they are paying. We have got to get together, in that particular situation and trust each other. It has been our policy to tell our customers what the situation is likely to be. We are in touch with the cooperage situation not only in Canada but all over the United States; we possibly handle 50 per cent. of the cooperage business in Canada, and we will give any of our customers the best advice as to when he should buy. We will see that there is enough cooperage stock to supply the demand, but if we are going to do that, we have to know where we stand. In 1920, the whole district where we supply 95 per cent. of the cooperage stock was looked after, it may be at a high price, but we have to buy at a high price. At any rate, the crop was taken care of, and that can be done this year if we get together, and if we get together at the proper time, it can be done so that we will get a cheap package.

Q.—Can you tell us about the price to-day? A.—It is based on the present price of apple barrel stock.

Q.—Give us the price of stock first? A.—Apple barrel staves, 28½ inches to-day list at $20 a thousand. No. 1. 6 ft. coil elm hoops, $35 a thousand; apple barrel heads 16 cents and 17 cents each, depending on hard or soft wood. Coopers' nails $11 a keg, f.o.b. cars, Ontario points.

Q.—What about the price per barrel? A.—About $1.10 each; I am answering that from the standpoint of the retail cooper. As I said before we have to protect the distributors, and the only way is to see that he has a living profit.

Q.—Are these prices last fall prices? A.—Present prices. These prices are not based on cost; they are based on competitive markets. Logs cost $50 or $60 delivered at the mill, which those prices do not cover.

Q.—What would be your price on 3,000 or 4,000 lots? A.—When would you take delivery?

Q.—The present time? A.—$1.00 each.

Q.—What time would you make that delivery? A.—I would make that delivery up to April 1st.

Q.—What about the quality: do you have different grades? A.—Yes, depends on the kind of stock you use. There is only one grade in hoops. We sell No. 1 elm hoops. There is only one grade apple barrel listed, but there are different grades in staves. That price would cover No. 2 elm stave.

Q.—It would come under the head of what? A.—Apple barrel stave 28½ inch mill run; the hard wood heading would be mill run and the soft wood would be No. 2. It would be the standard size 28½, with ⅝ bill.

Q.—Have you decided on jointing for proper sized barrels? A.—Yes; we manufacture all our stock this year, standard apple barrel size.

Mr. Wallace: I want to make special mention about this barrel business. I have been advocating to the growers to buy their stock now and use up some of the surplus energy that is going to waste all over the country, and I think a barrel would cost about 90, 91 or 92 cents altogether.

Mr. Fraser: I would say in round figures those prices are right, but I would say 95 cents to be sure. Last year the barrels were costing 17 cents apiece for labour, but you can make a barrel to-day for 10 cents or perhaps less. If anybody is thinking of buying stock, he should buy it as soon as possible. The statistics covering fifteen years in the cooperage business show that during the months of February, and March, the stock is always lower than at any other time of the year. Another reason is that the cut in Canada is practically nil; it is not one half of what it should be.

Q.—How is it in New Ontario? A.—We have two mills working in New Ontario, but we are only manufacturing heading, and part of that heading is going into the sugar and flour barrel business.

Mr. Wallace: There have been fewer logs taken out of New Ontario this winter starting from Huntsville north than there has been in any of the last five years, and in the older sections down here we cannot get the lumber.

Mr. Fraser: The second point I want to make on the stock situation is that those prices are competitive with the American quotation; there is nothing in the world that fluctuates so much as American quotations, they are governed by necessity. They will fluctuate overnight. For those two reasons now is the time to buy apple barrel material.

Q.—Is there any supply on hand of dry staves and heading worth while manufacturing this winter? A.—No; there are not enough dry staves and heading on hand to make 25,000 barrels in the whole Province of Ontario.

Q.—Cannot you import dry staves? A.—Yes, but at the present rate of exchange it runs the price up. There is a stock of about 25,000 or 30,000 barrels on hand now available for shipping, but nobody is in a position to diagnose the case for six months.

Q.—How many barrels are required in Ontario annually? A.—I cannot give you the statistics off hand, but something like 500,000 used in Ontario.

BOXES.

S. H. Moore, British Columbia Manufacturing Company

We come to you this morning representing the British Columbia forests, where as far as this generation, the next generation and the next generation are concerned, there is no shortage. Furthermore the British Columbia Manufacturing Company, which I have the pleasure to represent, operates three large lumber mills and two shook mills, continuously throughout the year, working full force, and they are able to handle very large contracts.

Anyone who has been to British Columbia and seen the fruit and tasted it, with all due deference to our fruits in British Columbia, knows that the Ontario apple has the flavor. There is no question of that. However, it is only fair to state that the British Columbia fruit growers are really Ontario men, who have gone West and are developing their business in a very satisfactory way. They have gone there and found themselves up against several conditions different to the old Province. They have found the fruit growers in the neighboring States to the south were able to get a larger profit from their apples than the fruit grower in Ontario. They also found there were none of the beautiful elm trees out there so they could not make the Climax baskets, but they were not sorry because they found in packing them in boxes it lent itself to better display and the fruit reached the consumer in better condition than when packed in barrels and topped off, and all the other features of a large package. They found a very much greater profit was available to them through packing in the method that had been adopted largely by their neighbors to the south.

I have with me this morning an apple box made by the British Columbia Manufacturing Company for a firm in Ontario, and by the way, we have already developed a large business in the Province for its production. The box is made of B.C. spruce; all their boxes are made of the same material. It is odorless and tasteless, which is a great point in favor of it. It has one piece ends and one piece sides.

Mr. Carey: Is that general?

Mr. Moore: Yes, we will guarantee to deliver to you in carload lots, boxes that will have one piece ends and one piece sides. This box never splits. On account of the B.C. spruce tree growing so large, it lends itself to much better wood, better grain, less knots and not liable to split. I have never seen any boxes that have come down here, split or cracked in the end. That box is also very much lighter in weight than the Ontario box.

The two gentlemen who have spoken have already told us about the scarcity of lumber in Ontario. We know what the government is doing about the reforestation of our Province which is a good thing. The British Columbia timber being of a long grain gives it the feature of stability, which is very necessary in the packing of fruit. It is made lighter as well and that means less cost in freight in shipping overseas or long distances.

Q.—They have abandoned entirely the one piece top and bottom? A.—I think so for the sake of ventilation, and also for the give that is necessary. The apples are packed a little higher in the top. These are priced to the buyers here at 30 cents, delivered at your station, in carload lots.

Q.—Does it take four to a barrel? A.—Three apple boxes to a barrel. It is printed in two colors at one end, without any extra expense.

Q.—What is the inside size? A.—It is absolutely standard size; inside measurements are 18 x 11½ x 10½.

Q.—Is that price made up or in the shook? A.—In the shook.

Mr. Carey: You are not quite right about the comparative capacity of the barrel and this box; it takes three and a half or three and a third boxes to the barrel.

Mr. Moore: As far as the berry boxes are concerned I would call your attention to this collapsible berry box used in British Columbia. These are very dry. They come in the knocked-down form as well and are easily put together. This box has some features worthy of notice; the bottom for ventilation is a very necessary feature.

Then there is a 27 box crate. I would like to correct a statement made this morning, when 32 cents was the price given of the crate in knocked-down form; it is 23 cents delivered in any part of Ontario.

Q.—That is the price of the crate; what is the price of the box? A.—$6.00 a thousand. The crate is built with these decks resting upon the ledge in the side and not resting on the berries, and it is so made that the boxes will not slip out. There is plenty of ventilation through this box, both from the bottom and the open features in connection with it.

One big feature in connection with the berry box is the square sides. With the tapered box, there is always a tendency in transportation of the shaking down of the berries, and the crushing of the bottom berries. This is also of the standard size.

This is the 24 box crate, and is preferred by some for long distance shipping. It is a good solid package.

Then we have the five pound tin top basket for early tomatoes or other larger fruits. There is plenty of ventilation, and it is a good solid box. The price of this is $18 a hundred.

Q.—Do you use those for peaches or plums? A.—Peaches, plums or any of the larger fruits. For tomatoes it would bring a man great reward for his trouble in packing, and not allowing the Americans to ship in all the early tomatoes. There are plenty of tomatoes in Ontario to take care of the early market providing you have the package to put them in.

Q.—Does that $18 include the price of the crates too? A.—It would be $18 a thousand of these containers, and $18 a hundred for the crates. As far as we are concerned, we can promise delivery almost immediately from the time the goods are ordered, on to the track in Vancouver, and in about three weeks to almost any point in Ontario. An unlimited supply of material makes it possible to afford you a service, that I believe will be appreciated.

Q.—The prices quoted are f.o.b. Toronto? A.—For Ontario points.

Q.—Carload lots? A.—Yes.

Q.—Not open for distribution from Toronto? A.—No; we have a number of associations that buy in quantities, and the local fruit growers get their supplies from the headquarters.

Q.—How many apple boxes are there in a carload? A.—About 5,000.

Q.—Is the price 30 cents. made up or in the shook? A.—In the shook.

Q.—Do you make a pear box as well as an apple box? Yes.

Mr. Palmer: We have a basket that holds a standard States bushel, slightly less than a Canadian bushel, but which I understand passes all right on this side, and which we can deliver to Toronto or Ontario points for 30 cents, set up. I believe it is a package that is going to be popular over here. It goes right to the consumer, furnishes about the right amount, and it comes already set up, and there is no extra expense. It loads well in cars, and makes a very fine display package.

Q.—Would that be duty paid? A.—Duty paid and exchange paid. That is the price in Toronto in carload lots.

Q.—Does that include posts? A.—Posts are 15 cents a dozen extra.

Mr. Coulson, of the Canadian Wire Bound Box Company, also spoke in regard to the box manufactured by his company. He said: This box can be shipped out in the shook form or in the made-up form. The top is called a wedge loft; it is slipped in and the wedge secures it, and it goes to its destination without danger of being broken, and this box cannot be tampered with in transit. It is standard size.

Q.—What is the price of the small box? A.—42 cents and 52 cents.

Q.—How do you pack it? A.—The box is set on its end, and the contents placed in and filled.

Q.—It is a jumble pack? A.—Yes.

J. R. Hastings, Chief Inspector Western Ontario: I have a few things to say with regard to packages in general, and it will have reference more to the Fruit Marks Act as it applies to the packages than what has been said by the previous speakers.

We are going to face a somewhat different condition in the season of 1921 from what we faced in 1919 and 1920, in the package situation. In 1918, an effort was made for a very complete standardization of all fruit packages, particularly of the eleven and six quart baskets, and that is one of the features that many of you are not particularly interested in. An effort was made to put these regulations in force in 1919, but it failed for the reason that packages which had been in storage in many of the fruit houses from one to 25 years, were brought out, and there was nothing for the Government to do but permit the use of all these old packages. It was felt by the Department that 1919 would clean up that condition and get rid of all these ancient packages.

Then we reached the season of 1920, and you know what happened. Every conceivable package that would carry fruit was used, and it was certainly not up to the Government to prevent the use of anything that would carry fruit in anything like a reasonable way.

I feel now that practically all of the old packages have been disposed of. There are very few packages which were manufactured prior to 1920 left in the country, and we are now face to face with a somewhat different condition. So far as barrels are concerned, I cannot see that there need be very much difficulty in getting a barrel that will be absolutely satisfactory to the grower. There is much less danger of a barrel going to pieces than there is of our Climax baskets, so that after the manufacturer has complied with the requirements of the Fruit Marks Act, there is nothing left but for the grower to give the barrel reasonable care when it is in his possession.

I think you have heard enough on the subject of the box, but I want to say a few words about the Climax basket. Prior to 1918, we had no specific dimensions or well defined specifications for baskets; the manufacturer could make pretty well what he pleased so long as it held the quantity. In the Conference of 1918, everything that entered into the manufacture of that package was specified, and it was done with the acquiescence of the fruit growers and the manufacturers. It does not impose a hardship on any manufacturer to comply, not exactly with, but to make a substantial compliance with the regulations, and I want to say that most of the manufacturers are doing that. There are some basket manufacturers who are evidently a law unto themselves, and they are going to make a basket as they please, regardless of any Government regulations, but there are only a few of them. The package question, so far as the basket is concerned, has reached a point where the grower has to put his fruit into a basket in order to have it accepted by the transportation companies, and it is up to the grower himself to see that he gets from the manufacturer a package that is in substantial compliance with the Fruit Marks Act.

Mr. Fairbairn: Would that put the onus on the grower?

Mr. Hastings: I am coming to that. The opinion seems to be abroad among the growers that the Government should see that the manufacturer lives up to the standard as set, and the onus is on the manufacturer and the Government, rather than on the grower, but it does not work out that way in general practice. When you contract with a basket manufacturer for your supplies, by simply stating it must come up to Government standards, the manufacturer will probably see where that provision is in his contract, that you get baskets that comply with the Government standards. We do not insist on an exact compliance with the specifications, but a substantial compliance.

Mr. Fairbairn: Is it not possible for these factories to be looked after by the government through qualified inspectors, because there are very few growers who actually know what these specifications are?

Mr. Hastings: There is no trouble in finding out by getting a copy of the Act.

Mr. Fairbairn: That entails a good deal of work when you spread that over 3,000 growers, where one inspector could do the work much more efficiently.

Mr. Hastings: I will probably cover that point shortly. As a matter of fact the government is doing that thing now. I have been to practically every factory in Ontario west of Toronto, with two exceptions, and I understand it to be my duty to see that these factories live up to the regulations, and most of them are doing it.

Mr. Fairbairn: You are speaking purely of Climax baskets?

Mr. Hastings: Yes, entirely. I do not wish to create any wrong impression with regard to other baskets. There are other packages offered to the growers that are not Climax packages. I have reference purely to the eleven and six quart Climax baskets.

During the last season, I have found that one of the vital difficulties is the handle, and this is something that the growers may be to blame for to a certain extent. The basket may be in all other respects of excellent material and strong, but if the handle is faulty the whole package is faulty, and I daresay that 75 per cent. of the losses that accrued to the transportation companies last season on account of faulty baskets was due to the rotten handles—handles that had been made out of dead wood or not made according to specifications. I know of one instance where a grower purchased 500 handles, and out of 500 he used 40, the rest were absolutely useless. That is one thing the growers can certainly insist on, and he can tell very readily whether that handle is all right. The handle must be strong enough to carry the package or the package is faulty.

A Member: If the package is improperly handled or improperly taken care of by the express company or carrying companies, the handle won't save the package if it is made of iron?

Mr. Hastings: The fault does not all lie with the express companies or carrying companies. Another thing I have discovered is that the law requires that two nails will be driven into the bottom of the handle, and naturally it is expected these nails will be driven into the bottom of the package securely. A great many of our growers handle their own baskets, and they use only one nail, and in some instances the nail was not in, and I venture to say 90 per cent. of those baskets never reached their destination unless the transportation companies fixed them up.

Q.—How will the growers remedy this handle business?

Mr. Hastings: Refuse to accept handles not in accordance with specifications. The grower must take steps to see that he is getting a package the law requires. The government cannot do all these things for him. We are going to see that the factories comply with the law as far as the government can do it. I know the factories that are making the packages the law calls for, and the task is not going to be very difficult. As to the penalty for not keeping to specifications, first of all we will lay the information against the man and have him fined. Another thing that may be done is that the grower may refuse to accept those handles or the baskets. Also the express agent may, when he sees these baskets are not in accordance with the regulations, refuse to accept them.

Q.—Supposing he does not; he is at a loss for the fruit in the basket?

Mr. Hastings: Over and above all that, the Dominion Fruit Branch Inspectors, in addition to inspecting the fruit, are also inspecting all these packages, so that really the grower is pretty well protected, and I am perfectly well satisfied that we are not going to have very many faulty packages on the market during 1921, so far as these baskets are concerned.

Q.—What would you do with a manufacturer who accepted a contract, according to specifications, but did not deliver the goods until after the man's crop was all marketed; in fact had no intention of delivering the goods?

MR. HASTINGS: That would be a breach of contract, and the man has his remedy at law. We could not put him in jail for it.

I want to impress upon the growers that when they are handling their own baskets, they must put in two nails in the bottom, and see they go into the bottom. I think the manufacturer should have his share of the blame, and the transportation company should take its share; but I think the grower should also take his share, and he has got a share. In a great many instances, the grower does not take care of his baskets. I have seen baskets stored in all kinds of unsuitable places; over chicken coops, in lofts, exposed to the weather during the whole winter, and piled up altogther too high, so that they are out of shape in the spring. They are left out in the orchards during rain storms, and in dirty places until the package has become very unsightly, and no one can tell me that that has not a tendency to cut down the price of the fruit. Women will take a clean package 99 times out of 100. For that reason I think it is well to call the attention of the growers to that feature.

MR. BIGGAR: In regard to packages from the States, do they have to meet requirements?

MR. HASTINGS: There are certain requirements that have to be met by the importer.

Q.—The strawberry boxes are only about half a box?

MR. HASTINGS: They have a small box of berries and they have the regular box, that is, the box that corresponds with ours, but there is no provision in our Act that excludes these packages. I think the only provision is that the man who imports from the United States or any other foreign country must put his name on the box: Imported by————. That is the only requirement so far as imported fruit is concerned.

MR. WALLACE: There is one point you cannot dwell on too emphatically, and that is the care the package gets after delivery. The stock should be kept absolutely dry; no barrel will stand kept wet three or four weeks at a time in an orchard. It is important that a barrel should not only be kept dry before filled, but every grower should have a proper place to keep his barrels in after they are filled.

MR. HASTINGS: You will never get a satisfactory pack of apples, even if you put on an army of inspectors, until your apples are packed under competent supervision, and under cover from the weather—in other words, in a central packing place. That is the conclusion I have reached after a study of the situation extending over three seasons. The government is not particularly interested in how a man packs his apples so long as the grade is there. They can legislate until they are black in the face, and we can inspect until we are black in the face, but we will never get a satisfactory pack until the packing is done under competent supervision and in a central packing house. We have men in Western Ontario who have well equipped packing houses, and they put up a beautiful pack, but there is only one in a hundred who do that.

MR. WALLACE: That is not covering the point that it is absolutely necessary to keep the barrel dry.

MR. HASTINGS: You are absolutely right. No grower should allow a barrel whether empty or full to stay out even an hour on dirty ground, where it can be rained on and snowed on until it is hardly fit for anything.

MR. FOSTER: Has an inspector any jurisdiction over that? Have they the privilege of refusing to let them go forward?

Mr. Hastings: No, we have not. We do assume jurisdiction sometimes, but we have no legal authority to stop a shipment of fruit no matter how dirty the baskets may be, so long as they comply with the regulations as to dimensions, and the fruit complies with the regulations. I have seen packages that were so dirty I would be ashamed to ship them even to the cheapest huckster in Montreal, and the fruit in that basket was absolutely first class.

Mr. Sirett: Unless you have a cold storage to put Greening apples in, they will keep better in the orchard than in the ordinary storehouse, so they are left in the orchard until the weather is cool enough to store them, and is it not much better that the barrel should suffer than that the apples should suffer?

Mr. Hastings: Do you mean to tell me that a barrel of Greening apples will keep better exposed to all sorts of weather conditions, rained on and snowed on, and then dried out by the sun the next day, than in a store house? Do you mean to tell me those apples are in good condition for shipping?

Mr. Sirett: I mean to say I would sooner have a Greening apple in the orchard than in the ordinary storehouse. We do not usually expect there will be very much snow or rain until later on. I am speaking from my experience and the experience of the other men throughout Northumberland: that the man that has his apples out in the orchard suffers less from injury to his apples, if they are left there until the weather is fit to store them, provided he gives them as much protection as he can in the orchard, than in the ordinary storehouse.

THE GRAPE MARKETING SITUATION IN 1920-1921.

T. J. Mahoney, R. R. 1, Hamilton.

I find in order to give you a comprehensive idea of the grape situation it is necessary to go back a little further than 1920 and refer you to August 1919, when the first Grape Growers' Association was established in the Niagara Peninsula. At that time there were a number of grape growers especially in the viciniy of St. Catharines, who felt in making comparisons of prices received for grapes in Ontario and on the American side, that they were not receiving a fair price for their grapes; they were more convinced of that fact by reason of the wine manufacturers setting their own prices.

Because of that these gentlemen got a small organization together, which gradually extended to other places, and in August 1919 we had from four to five local organizations in the Niagara District. The president of the St. Catharines Association was appointed to wait on the wine manufacturers with regard to the prices for 1919. They were told when they approached the officials of the organization that the prices of grapes had been fixed on the 7th day of June, and so far as they were concerned there was nothing to be gained by further discussion. However that small organization succeeded in getting in touch with a couple of dealers on the other side, and one of them was induced to come to the Niagara District and he bought some 58 cars of grapes, which, I believe was the largest amount shipped from the Niagara District up to that time.

In January, 1920, we decided if we were going to do any effective work with regard to marketing the grape crop, we would have to start early and if we were to have the proper influence in the district we should have, it would be necessary to get more information. We decided therefore to approach the Councils of the different grape-growing districts and secure the services of their officials in having a census made. The result of that census was tabulated in the first part of June, and it was certainly a surprise to us to know that there were only 4,500 acres, and not 8,000 acres as had been thought, and in a normal year there would be a production of 10,000 tons.

When we began to make comparisons and consider the limited acreage which had to supply the whole of Canada with grapes, and when we considered the amount the wine manufacturers needed for their purposes, and what the grape juice concerns required, and further when we considered the prices that obtained in the States were higher than we were obtaining, we were thoroughly convinced of the fact that we are not receiving the market price for our grapes, and in looking around for the factors which prevented us from getting that price, we immediately decided the wine manufacturers were probably the cause.

We will take as an example 1917; in that year the wine manufacturers went out in the early part of July and made contracts for their requirements at $30 a ton. As soon as the wine manufacturers got their supply, the dealers made contracts for what they considered a sufficient quantity for themselves at 20c. a basket, basing their price at $30 a ton. As the season advanced it was seen that the grape crop was going to be short—the average was a little over 50 per cent.—and the prices went up as high as 30c. a basket. It is true the wine manufacturers in order to keep the grapes from being taken away altogether increased their price from $30 to $40 a ton, but the dealers did not follow their example, and the grape growers of the Niagara District who had contracted their grapes at that price had a very substantial loss.

These are the conditions the grape growers saw facing them, and when they found there were only 4,500 acres of grapes in the district they decided that the important thing to do was to have the facts placed before the growers. Beginning in June we held a series of meetings, and we organized thirteen local divisions with a chairman and secretary, and secured the membership in our Niagara Grape Growers' Association. Just here I would like to distinguish between the Niagara Grape Growers' Association and the Niagara Peninsula Growers' Limited which is really an outgrowth of the Association.

Having placed the facts before the grape growers of the district by these series of meetings—I think thirty-two all told—we held executive meetings in St. Catherines every Saturday afternoon at which the presidents were present, and the whole situation was thoroughly discussed. We decided to get in touch with the wine manufacturers because we felt that was where we should start our work if we wanted to secure any results. We sent letters to all the wine manufacturers asking them to meet us to discuss the grape-marketing situation in 1920. Two of the representatives that met us took pains to explain they were not there as official representatives but simply to hear the proposals we had to make. One of them made a suggestion that a conference be held at which there would be three representatives from the wine manufacturers, three from the dealers of the Niagara District and three from the grape growers. That proposition was entirely satisfactory to our committee, and the meeting was arranged to take place on August the 4th. On August the 3rd our secretary had a telephone message from the gentleman who made that proposition, who represented one of the biggest wine-manufacturing concerns in the district, and he stated that after taking the matter up with the other factories they decided there was really nothing to be gained by having a conference with reference to the grape-marketing situation as they thought it was too early in the season to discuss prices or other matters connected with the industry.

We did not have any mistaken idea of what that meant; we knew it meant a show-down, and we determined to come out as victoriously as we could. We then called a meeting of the grape growers at St. Catharines on August the 7th. We could not get a hall big enough to hold the meeting, and it was one of the hottest days in 1920. The executive met before the meeting took place and we decided to go before the meeting and propose that a Joint Stock Company be formed, capitalized at $500,000, 50,000 shares at $10 each, and that we go into the business of selling grapes. When that proposition was submitted to the mass meeting there was only one man in that large assembly who refused to stand when we asked for a standing vote approving of it.

Our charter was drawn up on the following Monday, on Tuesday the Provisional Directors met and signed the application for the charter which we received on the 26th of August and on the 13th of September we opened an office in St. Catharines. Between that and the 10th of November we sold 410 cars of grapes of which 341 went to the United States market.

With regard to price: In the early part of the season the wine manufacturers endeavoured to make their contract for supplies at $50 a ton but the price we thought we should get was at least $80 a ton. When we decided to form our company we had a mighty difficult situation to contend with. As you know in the Niagara District we had a most abnormal crop of fruit. Peaches were a glut on the market and plums you could not give away, and we were up against the most acute basket famine in the history of the district.

When we organized the company we had three objects in view; first, to get packages to handle the grape crop; second, to get experience as dealers; and third, to take away from the wine manufacturers the power which they had been so long exercising in fixing the price of grapes without consulting the growers.

Before we opened our office on the 13th day of September, we had made arrangements with the American Fruit Growers, Incorporated, one of the largest selling organizations in the United States to handle our grapes on the United States market on a 5 per cent. basis, they to guarantee all collections. Our experience has been entirely satisfactory with that organization; and they came highly recommended to us, and we have had no reason to doubt the high recommodations which were represented to us when we made our contract with them. In order to handle our grape crop it was necessary to import over 100,000 bushel baskets from Indiana and Georgia, and of these, 96,000 were filled, loading 200 cars, and sent back to the United States. The actual price to the grower for his grapes shipped in these bushel baskets was $80.20 a ton, that is, after everything was paid including the price of his baskets. We sold 306,000 six-quart baskets of which 200,000 went to the United States, and we sold 75,000 eleven-quart baskets. These brought $103 a ton, or $93 after the baskets were paid for. We sent grapes to Boston, Philadelphia, New York, Pittsburgh, and even over to Detroit, notwithstanding the fact that they have such a quantity of grapes in Michigan, and other markets in competition with the American grapes, and they brought as good if not better than the American article. Had we been able to handle them in the American standard basket, we would have received $12 a ton more.

Our total turn-over was $496,000. In paying the growers we decided in the first place, to fix on the price of $85 a ton and pay them 80 per cent. within ten days, and the remaining 20 per cent. inside of thirty days. We followed that policy throughout the season, and we found after the year's business was done we had a surplus left of $33,000, which we did not know what to do with, so we pooled that amount of money, giving each grower what was coming to him in proportion to the amount of grapes he had supplied, and based, of course, on the kind of package. Those who had 11-quart baskets got the highest price.

In entering 1921, we are doing so with much better prospects than we had when we organized. We were forced into the grape marketing business owing to circumstances over which nobody apparently had any control except the wine manufacturers, and possibly the dealers. However, we got into the business and we are in it to stay. We have at present under contract of the 4,500 acres, 2,500, and our objective is 100 per cent. of the grapes under the control of our company. We may not succeed in getting that this year, but we are going to make the life of every grower in the Niagara Disrict miserable until we do get him; if one man cannot get him, we will send another to point out that it is to his own interest to get into the organization and form a distributors' company that will have absolute control of the grapes which he produces.

On account of the Emergency Tariff Bill which appears in the papers to-day, which puts 4c. a pound on the cherries going into the United States, there may be some misunderstanding on the part of some grape growers that possibly the United States will put a higher tariff on our grapes; at the present time it is about $15 a ton. I do not think there is the slightest danger of that, at present. We are receiving more grapes from the United States than we ship in, and there are other reasons why there is not much danger of any agitation taking place for higher duty on Canadian grapes.

A short time ago there was a National Grape Growers' Convention, consisting of representatives of the co-operative grape-selling concerns from the different states. Two from each company told of their experience with regard to the marketing of grapes for 1920, and it was the general opinion of all that the most profitable package to sell in was the standard twelve-quart basket. At this convention there was some discussion of Canadian grapes on the American market; owing to the effect of the odd-sized baskets, six and eleven quarts, our grapes attracted considerable attention, and it was the opinion that we had a tremendous quantity of grapes for export. But when the Niagara District is called upon to supply grapes for the whole Dominion, for wine manufacturers and for grape-juice concerns, if there is the same demand for grapes on the part of the people here as in the United States, we would not have nearly enough to go around, and when we explained these conditions they were inclined to think there was not much danger of our few acres interfering with the United States market. In the Chatauqua belt there are 30,000 acres, and if we put our whole grape crop over there, it would not make a ripple in the demand for them there. Since prohibition has been in force in the United States, there has been a tremendous demand for grapes to make home-brewed wine.

Our grapes went as far south as Louisiana; six cars went to Memphis, Tennessee, and it was a remarkable coincidence that my brother there saw Canadian grapes in a fruit store and went in and bought some. He paid $2 for an eleven-quart basket, and he said every person who received the grapes was entirely well pleased with them, and that there would be a much better market next year. Under these conditions we have not the least doubt that we will be able to market our grapes. As far as the grape growers are concerned, we are going to insist on every package being the proper kind, and every carload of grapes being packed and loaded in the proper way, something which was impossible for us last year owing to the short time we had to get our organization together. If we put our grapes on the American market in the same baskets the American grapes are put in, we will get anywhere from $5 to $10 more than the American article because our vineyards are very much better taken care of.

In connection with the Niagara Peninsula Growers, Limited, which is being organized for the purpose of marketing other lines of fruit, under the original agreement, those who wanted to join that organization were obliged to put all their fruit through it, but it was found in securing applications for membership, there was a very strong opposition on the part of grape growers who had gone into our company last year, from joining under these conditions; they felt that the Grape Growers had done good service in 1920, and they had got a much better price for their grapes than otherwise, and it would be as well to let the Grape Growers carry on and handle the grape crop at least for this year. For that reason, an agreement was entered into between the Niagara Grape Growers' Association and the committee of the new organization, whereby grapes are excluded from the list of fruits which any member had to put through the new company, provided he became a shareholder in it.

The arrangement arrived at is this: The Niagara Grape Growers, Limited, will secure contracts for all the grapes possible to secure, not only from their own members but those joining the new organization. They will also be allowed to contract for grapes with us, and we will undertake to supply the wine manufacturers with the grapes they need at prices not fixed by them but by ourselves. I hope, and to supply the grape juice concerns and the United States market, or what we can spare for the United States market. It was felt, owing to the fact the new Association is going to organize a Sales Department to take care of practically the whole of Canada, that they would be in a much better position to handle the grapes on the Canadian market than we could, while we could handle them better for the American market. It is also agreed, in the event of the new concern wishing to sell any other line of fruits on the American market, that these fruits will be sold through our organization. There was nothing specified as to what remuneration would be received for our services in that respect, but I think it is generally known that as a Grape Growers' Company we do not want to make any profit on that business. If there is a glut of grapes on our Canadian market, and we can find an outlet on the American market, we will do so.

We have two organizations with exactly the same objectives, and while it is a much more difficult problem to successfully launch a new organization than it probably is to deal with the Grape Growers, still I think if the growers will show the same co-operation and loyalty as they have shown the Grape Growers, there will be no difficulty about this new concern being a success.

MR. WALLACE: We as manufacturers are prepared to manufacture the 12-quart basket if it is going to be of advantage in the marketing of any of the fruits in the United States.

MR. MAHONEY: I have a communication signed by Mr. Baxter stating the Government is quite willing that these baskets should be manufactured, and used if stamped "For Export Purpose," and we already have an option on 500,000 baskets.

NEW YORK STATE PACKING ASSOCIATIONS

N. R. PEET, GENERAL MANAGER, WESTERN N.Y. CO-OPERATIVE PACKING ASSOCIATION, INC., ROCHESTER, N.Y.

I hesitate to say anything without first calling your attention to the fact that there is a large panacea, as I see it, for co-operative associations. The conditions under which they operate in different sections are very varied, and it is to meet these conditions that we organize. For that reason, organization takes different aspects, adopts different terms and performs different functions under existing circumstances.

To get on common ground, let me go back to the time before we had co-operative organizations, and tell you about our situation. Our particular section of Western New York State lies along the Southern Shore of Lake Ontario from the Niagara river, a distance of about 2,500 miles. It varies in depth greatly, but the district with which we are concerned is largely in a belt not much more than 10 miles wide from the lake shore. Some of our organizations do extend down into the Finger Lake section. In that section there is a tremendous amount of fruit, but it is largely tree fruit. Apples are the most prominent, then peaches and pears, running down through plums, prunes, quinces and finally grapes. The real grape section of Western New York State is on the shore of Lake Erie and also around the Finger Lakes; very little around the Lake Ontario Belt. That is one of the oldest fruit sections in the United States, there are apple trees bearing that are over one hundred years old.

There has sprung up in that district a system of marketing which may be characterized something like this: There are three types of people that are handling that fruit; first, the speculator who comes into the district and buys in large quantities sometimes as high as 200,000 barrels, but usually from 50,000 to 200,000 barrels depending on the year. If he foresees a rise in market he buys in larger quantities, and in a year like this he would not buy at all. The next class is the local buyer who lives at the station or in the community, who operates a buying and selling business in general and distributes the fruit which he buys from the grower in that community. There is also another class of buyer which may be familiarly called a cash buyer, who comes in from a distant market and either buys from the local buyer or independently, and ships the fruit from there out. I have taken pains to outline these three types of salesmen because they are important to what I want to say. As a result of this method of handling and marketing the fruit there has grown up a system like this; A speculator, cash buyer or local dealer would come into a grower's orchard and say," I will give you so much for these apples just as they are, and I will pick them;" or he might say, "I will buy this fruit and you can pick it. Everything goes in except the cider apple." There are others who want strictly A1 stuff, and will pay the price accordingly. As a result of that varying system of buying there developed a situation where there was practically no standard of Western New York apples. In fact it got so bad that they passed a New York grading law which was intended to standardize it, but you cannot legislate men to be honest. It was impossible, not of enforcement but of operation, for the reason that everybody began to pack their fruit ungraded, and labelled it ungraded. Ninety per cent. of the fruit of Western New York went into barrels ungraded so as to get by the law. As a result of that we were losing the confidence of the buying public, and the small or retail merchant who had been in the habit of buying apples in the barrels did not know when he bought a dozen barrels to-day whether he could get another dozen barrels anywhere like them.

We can sum up the situation by saying that there was no standard of pack of Western New York fruit and that was the big need. Because of the losing of this confidence in our pack, our fruit has begun to take a very less rate than fruit from other sections, and as a result, in 1910 there sprung up a co-operative association which some of you may have known, the Eastern Fruit Association, with headquarters at Rochester. It was organized primarily to get better prices, to have a better method of distribution, and to cut out some of the overhead and some of the commissions that were taken in the business. They failed miserably after about four years' operation, because they did not have anything to sell.

When I was county agent in Niagara County we began taking farm management records, the same as you have been taking up here, and it developed that our labor incomes in a typical fruit growing section in Niagara County on one hundred farms for a period of five years averaged $274. That meant that the growers were getting $274 for a year's work together with the interest on their farm at 5 per cent, and with payment for the usual unpaid family labor and their living off the farm. In other words, those growers might as well have sold their farms, put their money out at 5 per cent. interest and hired out to somebody else for $274 and the living they could get off the farm. That did not appeal to the growers there although it was news to them, because most of them owned their own farms, but they did not reckon on 5 per cent. interest on their investment. The average of these hundred men is that kind of a man. He had a 70 acre farm, fully equipped, with tools, live stock and good buildings. Such a farm was worth $18,000, they were selling for more than that, but that was thee average capital investment on the farms. In the five year period the average returns from that farm was $3,500. These were largely fruit farms, 15 acres of apples, 12 acres of peaches, 3 acres of small fruits, that is pears, plums and so forth, and the average cost of operating the farm including barrels, packages, seed fertilizer, etc., was $2,300, leaving a gross profit of $1,200 on the year's business. Most of the farmers felt they were rich. If they could come through the year, have a living off the farm and $1,200 besides, they felt they were having a pretty good time of it. But the fact remains that the farmer was not alone responsible for that $1,200; he and his farm working together were responsible. His farm had an earning capacity of its own; he could rent it to somebody else. If it has not an earning capacity he might better sell it and put the money out at interest at 5 per cent, which on $18,000 would be $900, and yet he was content to receive $274. Another strange thing this farm record showed was that in the year of heavy crop production we got less money for total orchard sales than in the years of light production. That is not so in the manufacturing business. If you go to a shoe manufacturer and tell him he can make more money by cutting down his production he will laugh at you. The more shoes he turns out the more money he makes, and yet it is true that in the years of heavy production we took less money out of the orchard than in the years of light production.

It would then appear to be a marketing proposition. As a result of that, and taking the advice of the best people we could get in the United States, we started the building of Central Packing Houses where the fruit could be brought as it grew on the trees and packed to uniform grade. Three more packing houses were built in 1919. This year there were 22 in operation. Next year there will probably be 50.

There are hardly any two of these packing houses alike, and yet they do have some characteristics that are very similar. We needed a unit to build around. There was no other apple section of great extent where Central Packing Houses were in operation under similar conditions as ours. We figured that a packing house of 5,000 feet floor space would probably handle 20,000 barrels of apples. We must have space to put the fruit after it is packed. We considered 5,000 feet of floor space would probably handle 20,000 barrels of apples together with all the other fruits that the association members would have. It then became necessary to select the membership, and that is an entirely different proposition from what you have in your Niagara Peninsula for fruit growers; here your success largely depends on the number of people you get in. In our position just the reverse is the case. We need to select a small number of men who will work in harmony; so the membership is picked, so that in a normal year they would produce 20,000 barrels for that community. Most of these associations have about 20 members: they vary from 6 to 55, but average around 20.

We will assume that at loading station A there is a facility for building a packing house that would accommodate 20,000 barrels. The committee get to work and pick out twenty members, and they find that to build a large packing house it would probably cost around $4,500 for the building and $1,500 for the equipment. Ten of these men are not able to make their payment, the other ten men are. These men may vary a great deal in the number of barrels of fruit they individually will have but they each put in $300, and all go in on the same basis. The ten men who have not the $300 put in a demand note, non-interest-bearing, to the association; the other ten men pay their $300. The Association gives the latter ten men a certificate of indebtedness which is not exactly the same as stock. We organized under the Non-Stock Law because we have a very serious trust law on our side. The Association took these ten $300 notes and made a note for $3,000 and borrowed $3.000 from the bank, and at the end of the first year $300 was taken out of the returns of these ten men, they were given back their notes and given a certificate of indebtedness for the $300 which they put in.

The building was built. Each grower then made a contract with the Association to deliver all of his fruit. The fruit is delivered just as it comes from the trees. The number of the grower is stamped on each barrel and they are put in one part of the receiving room and the grower is given a receipt for his 25 or 30 barrels, listing the number of packages and barrels they contain. That fruit is then put on the sizing or grading machine. They would probably grade four or five of his loads at one time, and by that time the next member has three or four loads in and they will grade his. It does not take long to change from one man's pack to the next; it may be done without stopping the machine so long as the variety is not changed. As soon as the fruit is run off, the grower is given a packing house tally of the number of full barrels, together with the number of part barrels that his fruit has graded into, and then the fruit has become the property of the Association and its identity is lost. No man could tell which was his fruit; it is the property of the Association.

We find it takes a labor organization of about 15 or 20 people to pack these 20,000 barrels of apples. Of course it depends on the varieties; if they run to Duchess and Wealthy it does not take quite so many. And if all the fruit came together it would take more.

The organization is like this: There is a man at the receiving door who checks this fruit in, a man who empties the fruit from the barrel into the grading machine, three or four women taking out culls, depending on the quality or condition of fruit, four or five men filling and packing barrels, two girls facing the barrels, two headers, and then a crew to take the fruit away, deliver it to the trucks or put it into storage. Besides that there is the superintendent and bookkeeper, and there is one other person who checks the fruit as it goes from the packing house. We find such a person ought not to do other work but keep track of the fruit, because it is very necessary that it be done accurately. With such a crew we find the first year the Association can pack about 400 barrels a day. The next year with the same number of men even though the crew is not the same in the packing house but with different arrangements 600 barrels can be packed a day, and some Associations with a crew like that have packed as high as 969 barrels in one day of ten hours.

We pack our fruit graded to one-quarter of an inch. Each Association so far has been handling its own sales policy; each Association hires its own salesmen, and makes whatever contract they want with him. When the sales are made regardless of where they are made, from the storage or right from the packing-house floor, when the net amount is ascertained it is pooled and each grower gets for the same size and the same grade, the same price for his fruit.

These 23 associations last year, consisting of 500 growers, packed an equivalent of 350,000 barrels. By that I mean there were 250,000 barrels of apples, about 200,000 bushels of peaches, 50,000 or 60,000 bushels of pears, about 55,000 twenty-pound baskets of plums, besides some other fruits. When these are reduced to barrels it makes an equivalent to 350,000 barrels.

Up to last spring all of these associations were in Niagara County. They had formed a County Association to own a brand under which all of its fruit was packed. There were ten associations, all in one county, all using the same brand, although they had different salesmen. When the proposition came up of putting up packing houses in the other four counties, the question immediately arose, what brand shall we use? It was decided to develop one organization which should be a parent organization for all of these others, owning the brand and employing proper inspectors to see that the brand was lived up to and so forth. We feel that the brand is the main thing. We have had several growers, and some are now members of the association, whose pack of fruit with their special brand on it has been better than the average grower's and is known on the New York market, and brings 25 to 50 cents per barrel premium. Yet when the New York market is not working properly their brand is no better than the other man's on the Philadelphia market. The only time we want tonnage is under one brand, so that they may be known on all the markets as the Sun-Kist oranges are known everywhere. That carries with it a tremendous amount of responsibility to see that there are no packages which go out under that brand that are not up to standard. We are getting that standard very largely, by one-quarter-inch sizing our apples; no grade of apples varies more than a quarter of an inch in size. On peaches we have made divisions, all below an inch and three-quarters are number 3's or X. The inch and three-quarters to two inches are Cataract brand, XX, and two inches and up are Cataract brand XXX.

I want to stress the apple situation. It is not so hard to get variation in the peaches, but it has been difficult to handle one-quarter-inch-size apples so far as the trade is concerned. Much of the trade have tried to discourage us packing in quarter-inch sizes. Each of these barrels is faced with exactly the same size as they are filled, and the colour is not selected for the face. When the consumer or buyer gets one of these Cataract barrels he knows every apple right down through that barrel is exactly like the face. We have stood four square on that proposition despite all the trade has said, and we are beginning to make an impression. In fact, right from the first we have not lost anything by so doing, and this year we are beginning to get a premium. We have five different sizes in apples, 2 to 2¼, 2¼ to 2½, 2½ to 2¾, 2¾ to 3 and 3 up. There seems to be a place for each size and our 2¼ size are selling despite all the trade says; our 2½ are selling despite the fact that the trade want 2½ pack faced with 2¾. They are selling for just as much as the old style of pack, and we are getting premiums on our 2¾. I hope we may make an impression on you with our quarter inch sizes and get you to help us, because it will mean much to us and the whole barrelled industry to have apples packed in quarter inch sizes, and I think it will bring back the consumer's confidence faster than any other one thing.

So far the apple grading business has been done by growers. The grower has his point of view, the customer may have an entirely different point of view. The big proposition that the central organization has been putting over this year has been the packing of quarter inch sizes. In talking about this proposition either in public or private we are usually asked, "How do your prices compare with the independent grower's, the man who is not a member of the Association?" I say, "I don't know," and so far I don't care. We have not been operating to secure prices; we have been operating to secure confidence, and I am quite convinced from the experience of the last few years that we cannot get prices until we have accomplished three things. There are three things which a co-operative association can accomplish and are very worthy things to accomplish; they are three things that have not been accomplished by any other agency or association and I think they are the hope of the fruit business. They are: 1st, Standardization; that is fundamental and the others cannot come until that has been made sound. Next, is Merchandizing and Distribution, and the third is Advertising. I don't believe we will accomplish prices until we have put all three of these across.

There are several reasons why the Associations have not tried to combine so far as price is concerned, one of them has been the necessity of impressing upon our members the need of standardization regardless of price. Some years a dealer will out-guess a market or over-guess a market, will pay more than the Association can secure, and in the year when the dealer has over-guessed the market and then backs it up by paying what he has agreed to pay, in such a year it is a better proposition not to be a member of the Association when you are looking for prices alone.

In 1917 one of our Associations at Burke, New York, was selling peaches just as fast as they could pack them up at $2.50 a bushel, and the local dealers were paying $1.25. Things were going nicely when along came that car shortage. I was in their packing house one Monday when they had 20 barrels of peaches standing on their floor, that had been there since Thursday and they were a total loss. When that Association got through it was able to pay 95 cents to each grower. Some dealers paid $1.25, others got from under, some paid in paper, but if price had been the only object that year the Association would have gone under, because it had not got the price the dealers were paying. I believe that our growers have got the vision of these very things, so that they may leave to their children a fruit industry which may be safe, which may be substantial and which may pay in the end.

We have been going over four years in some localities. It is getting under way in splendid shape in others, and so far all we have been trying to do has been to standardize. I think we are beginning to secure results. We shipped ten cars of apples to one buyer. I assembled those ten cars from seven different associations in five different counties and when that fruit arrived I asked the buyer which Association gave him the best deal, and I am proud to tell you that his word came back he could find no difference between those ten cars. So I believe we are getting standardization. We have not attempted standardization of color as yet; all we have attempted to do has been size. This year we shall probably undertake a little standardization work along the line of color which will probably be necessary, because there is another feature coming up. Our members are now wanting a central sales organization. It is very natural they should want that, and I am glad to see it coming. Our Association find that they are now in competition one with the other; selling the same sizes and the same brand, and selling it through different agencies. The receivers are beginning to demand a central selling rate, so that they may all buy at the same prices on the same day for the same goods, and they want a man put into the market who will distribute that fruit for them and put a little system into the deal.

Another thing that has been driving the Association into a central selling organization has been a lack of buyers. This has been one of the years when there were no buyers in the district, and we wakened up to the fact that we have been depending on the man who came into the district to buy. The independent grower has been forced to consign, and you know what consignments usually amount to. One man characterized it by saying, "There's only one thing to say about consignments, and that is to say good-bye."

Our Associations have hesitated to have one central selling arrangement because they have not been able to visualize a man big enough to handle the sales. It is a tremendous job to sell even what we already handle, but there is in the district potential sales of $50,000,000 a year, and we have not been able to get the man to tackle these sales. We have been looking for that man, and we have come to the conclusion "There ain't no such animal." We are changing our minds now, and are looking for a system and not an individual. In a year like this, when there are no buyers in the community, what we want may be more clearly visualized by a wheel. The hub might be the distribution office in the centre, the spokes establishing connection with 100 or 200 different cities and distributing points, and then our salesmen are on the end of these points out on the rim of the wheel where the people are who want to buy. That is what we are trying to find at the present time. I have travelled about the Eastern States for the past month trying to get the system of various organizations, and from them develop a system which will take cognizance of the people who come into the district to buy and are willing to pay cash. I believe these are the best kind of sales that can be made. I hope whatever system we establish may include some arrangement whereby the man can buy at the loading points if he is willing to pay cash and take the responsibility, and I think he should have a premium for taking the risk incurred in transportation.

There is one other thing why our Associations want to get a central selling arrangement. Those who have been in our district know there is a system of cold storages, and in the past there has sprung up a system developed by some people, who, anticipating future markets, have bought heavily, and have put the fruit into cold storage expecting to make large profits. Their example has encouraged the growers to do these things themselves, and our Associations have been putting some of their fruit into cold storage; and yet there is nobody in Western New York who can clearly foresee the future, and say whether or not it is going to be a profitable thing to store apples. We want to have some system where we can start this fruit going as soon as it is produced, and keep it going right through the season in certain qauntites, putting a certain proportion into cold storage, depending on varieties. We should put our Wealthies on the market in the fall when they should be put on, and keep our Baldwins until after Christmas. One of the worst things I know of was this year, after Christmas, when we took a survey of the storages and found them heavily loaded with Wealthies and not heavily loaded with Baldwins. Baldwins should not be eaten until after Christmas, and yet a large number of them are put on the market before Christmas.

If we can start merchandizing this fruit going in the fall and keep it going week by week through the season, is it not fair assumption that we can change our cold storages into a warehouse proposition and not a gambling house? That is a thing that we want to accomplish.

In advertising, nothing as yet has been done at all. That is still in the future; it cannot come until standardization is more perfect than it now is. It will not be effective until we have a distribution system to back it up. If we want to attempt national advertising we must have a system whereby people can buy them on their own fruit stands. One advertising specialist, who addressed our meeting the first of June, said a thing that went right through me; he said, "A thing to be successfully advertised must be of such a nature that it will sell without advertising." There is a lot to think about in that. Advertising simply provides a stimulus; it does not provide the whole system. There is a big future in advertising. The results that have been secured not only by the California people but also repeated in one of the Pacific Coast Co-operative Associations, have created a friendly feeling towards their products, and they have been able to merchandize a crop in heavy production years without any decrease in the price per package. That is really worth while and it is something to think about.

Just to sum this up: The hub of the fruit industry of Western New York as we now see it seems to hang upon these three things: first, standardization, that is fundamental; then, distribution and merchandizing, and we simply cannot merchandize and distribute unless the fruit is standardized; and third, advertising, and advertising cannot come until we have first standardization and then the marketing and machinery to make advertising effective.

Mr. Fisher: Can Mr. Peet give us his idea of the arrangement of an ideal packing house in order to put the fruit through with the best system and the least cost.

Mr. Peet: There are several features that are beginning to be principles in such an affair, and it depends on the number of "ifs," but I will try and answer your question in this way: A packing house is usually divided not by partitions, but in our mind, into three divisions: First what we may call the receiving room, second a packing room and third a handling room after the fruit is packed. The receiving room does not need to be very large. We had quite a jolt; we thought it ought to be very large. We find that the smaller it is the better it is. Especially on peaches, and so far as peaches are concerned we do not have any receiving room at all, because the fruit is emptied right from the wagons on to the grading and sizing device.

So far as apples are concerned the receiving room is large in proportion to the number of members. An Association packing 20,000 barrels of apples with only ten members does not need as large a receiving room as one with twenty-five members, because you must have a place for the fruit of each man. In spite of all we have been able to accomplish, a grower will bring in three or four varieties on each of his loads, and we have to have room to set aside those we cannot grade to-day. For an Association of 20,000 barrels and ten members I would say a receiving room of 10 x 16 feet is plenty large enough, or perhaps 12 x 60 feet.

The packing house floor depends altogether on the type of grader that is used. I presume you will ask me what is the best sizing machine, and if we start that I would not get home to-night. On peaches we have been using the Burke machine manufactured at New Fain, New York. It is graduated like one of our big gun barrels that is used on a man-of-war. We are finding that quite limited in its capacity, and its ability to change sizes. I have just found another peach machine which I think is much better and that is the Skinner Machine.

Q.—What apple grader do you use? A.—Use all of them, but we think the best is what we call the Succatash. It starts with a hopper. We make it at home and it is a combination of several makes. We have also made up our minds we want packing tables. We want the fruit to discharge from the sizing machine on to packing tables so that each person can operate independently.

Q.—Do you handle more than one grading machine? A.—Yes, we handle more than one. We have some Associations that have two of the Burke machines.

Prof. Crow: Do you have any trouble with the bruisnig of the apples on the way from the orchard to the central packing house?

Mr. Peet: We don't find much of that, because we have pretty good roads and we make the men use springs under their wagons. We do have a lot of trouble with the pickers, especially where we are paying them by the barrel. They will man-handle that fruit something awful, but this year we hope to be able to say we won't pay by the barrel but by the day.

Another idea that occurs to me in using the barrel as an orchard package: Do not make the mistake of putting the heads in the bottom of the barrel. We had some pickers who would put these in the bottom of the barrel so that the barrel did not contain more than 2½ bushels. We take the heads out and put them in an empty barrel criss-cross. We are getting away from the barrel as an orchard package, and we are going to use a crate. We need to have some other orchard package than the barrel but we have not come to that yet.

Q.—Has your unit a manager? A.—Yes, but we call him the superintendent.

Q.—Is he a highly paid man? A.—No, I think he will run from $35 to $50 a week during the packing season. He has nothing to do with the sales.

Q.—Do you think the central packing house idea with peaches could be worked out successfully? A.—Yes I do, I think we have more of a future in centrally packing peaches than with apples. I presume you refer to the injury by packing machinery. I will guarantee that not nearly so much injury is done to the peaches by packing machinery as is done by the package into which it is put.

Q.—Can you ship out the same day? A.—Absolutely, if we get the cars. This year we did not get the cars; but you would be in the same position if you did not go to the packing house. We were short 50 per cent., and of the 50 per cent. we got, 50 per cent. were not iced.

Q.—What are your grades? A.—We are just packing so far in A. grade. A. grade refers to the grade of the fruit and not its size. You might have a two inch and it will be A. grade. Fancy grade goes one step higher in color, and then there are other grades which are specified by the law but which we don't use.

CAN PRODUCTION COSTS IN THE GROWING OF SMALL FRUITS BE LOWERED?

E. A. Orr, Clarkson.

My subject is, "Can the production costs of small fruit be decreased?" I claim they cannot. We have listened this morning to the address from the basket man from Oakville, who told us his product had advanced in price, and I think every other class has advanced. I noticed the nurserymen said yesterday that if there was a standard put on the fruit trees it would be a great detriment to them. In our case we feel we have been very much handicapped by the extreme prices which we had to pay for labor on the farms, and if labor is not skilled on a small-fruit farm it is very disastrous.

I will try to give you an estimate of the cost of an acre of berries at my own farm at Clarkson. People have an idea that all the land at Clarkson is fruit-growing land but it is not. They have some good land at Dixie; they have portions below the track at Clarkson and a small portion above the tracks, therefore my prices may be a little high, but I may venture to say I am very nearly accurate.

CLARKSON DISTRICT.
COST PER ACRE STRAWBERRIES.

	1st Year	2nd Year
Interest on Investment, $1,000 per acre—2 years	$120 00	$60 00
50 tons of manure at $2.60 per ton	130 00	
Hauling ,manure from station 50 tons—Spreading at $1.50 per ton	75 00	
Plowing, harrowing, rolling, discing and cultivating	15 00	
8,000 plants at $10.00 per thousand	80 00	
Planting—2 men for 3 days	24 00	
Cultivating—3 times a month for 5 months, with man and horse at 60c. per hour	27 00	
Cultivating—3 times in fall—9 hours		5 40
Hoeing and placing runners—2 times per month, for 5 months, each time 1 man for 4 days	160 00	
15 tons of manure for covering at $2.60 per ton	39 00	
Hauling from station and spreading at $2.00 per ton	30 00	30 00
Raking off covering—1½ days $4.00 per ton	6 00	6 00
Hoeing—twice in spring—1 man for 4 days each time	32 00	32 00
Picking—7,000 qts. at 3c. per qt	210 00	210 00
Baskets—$8.25 per thousand	57 75	57 75
Crates—260 cases at 32c. each	83 20	83 20
Carrying berries—1 man for 10 days, $4.00 per day	40 00	40 00
Packer—10 days at $4.00 per day	40 00	40 00
Hauling to Station—2 trips each for 10 days	40 00	40 00
Express—12c. per crate—260 crates	31 20	31 20
Cartage—2c. per crate	5 20	5 20
Transportation of pickers from Oakville by truck 10 days—$8.00 per day	80 00	80 00
Team and mowers to cut off vines		2 00
Ploughing off the edges of rows		6 40
Weeding 18 rows—8 hrs. at 80c. per hr., $1.00 per row		18 00
Shaking the centre of rows out—1 man for two days		8 00
	$1,325 35	$794 15
Crop sells for 2 years at 16c. per qt. (14,000 qts. at 16c.)	$2,240 00	
Taking care of berries 3 years	2,119 50	
PROFIT	$120 50	

I do not think any of these prices are excessive; that is what it practically cost us to look after our berries. I have not dealt with the commission to the commission man, but the commission on these 14,000 quarts will cost you 2c. a quart. Drawing the pickers back and forth to the station and the picking costs you 4c. a quart. Your manure costs you 1½c. a quart. Your baskets cost you 2c. a quart; therefore you have to pay out 9½c. a quart. All these prices are figured on this year's costs.

Q.—What kind of manure do you use? A.—We get a mixture from Toronto.

Q.—Do you use paunch? A.—Yes, I have used it. It works out first-rate. The motor is taking the place of the horse in our cities which makes for scarcity of manure.

REPORT TRANSPORTATION COMMITTEE

Moved by Mr. Maycock, seconded by Mr. Johnson, and carried unanimously.

"Resolved: 1. That in the opinion of your committee it is in the best interests of the fruit industry of this province that it is not advisable to have compulsory loading to higher freight minimum than that now provided by tariff regulations now in force, and that consideration should be given to the lowering of minimums for certain varieties of fruit by express shipment.

"2. That this Committee further recommend that the Ontario Fruit Growers' Association go on record, as supporting an application to the Railway Companies, and the Board of Railway Commission, for a "Carriers' Protective Service" to be put into force at the earliest possible date.

"3. Further that a permanent transportation committee of not more than five or less than three be appointed."

The report of the committee on resolutions was adopted as follows:

"1. That the thanks of this Convention be tendered to the Hon. Manning Doherty for his very able address delivered at our evening meeting, and also for the interest he has shown in all matters pertaining to the fruit industry.

"2. Also that we, as an Association, would ask the Department to require that the manufacturers of 6 or 11-quart baskets put their name on the bottom of said packages so that it will be possible to inspect for defective making.

"3. Also that we, as an Association, express our thanks to Mr. Peet for the valuable information that he has imparted to us covering the handling of fruits in a co-operative way in New York State.

"4. That in view of the statements of the Royal Stock Show that their buildings will be ready for an exhibition in December 1921, we instruct our Directors to arrange for the holding of a National Apple Show in conjunction with the Royal Show, and ask the Federal Department of Agriculture to hold a Dominion Conference of Fruit Growers at the same time and place.

"5. That this Convention place on record on behalf of the fruit growers of Ontario, its deep appreciation of the valuable information presented to this convention by Prof. A. Leitch.

"Also that copies of these resolutions be forwarded to Prof. Leitch, and to the Hon. Minister of Agriculture.

"6. That the Directors be asked to appoint a Committee to consider and forward the scheme outlined by Mr. Baxter, Federal Fruit Commissioner for the central handling of the sales of apples.

"7. That a Committee of fruit growers be appointed by the Directors to watch any changes that may be proposed or made on the present tariffs on fruits coming from or going to the U.S.A., and that they keep in close communication with the Fruit Commissioner, Ottawa.

"8. That the Board of Directors of the Ontario Fruit Growers' Association be requested to take up at once with the Minister of Agriculture, the matter of extension in educational work in the interests of the fruit industry of Ontario."

The Resolution was carried with the understanding that the Directors appoint the Committees asked for in Nos. 6 and 7.

REPORT OF THE HISTORICAL COMMITTEE FOR 1919 AND 1920.

A. W. Peart, Burlington.

The winter of 1920 was cold but not unfavourable for trees and vines. The temperature was fairly steady and trees generally passed through the year in a healthy condition. The San José scale is beginning to reappear, notwithstanding its severe check by the cold winter of 1917-18.

Black knot, especially on plums of the Lombard and Gage types, is making headway, and will have to be dealt with radically in order to maintain our orchards.

Fruit prices during 1919 and 1920 probably reached the peak. In 1919 apples were sold at $1 to $1.10 per bushel, tree run, for good fall and winter varieties, delivered at the packing houses. Bartlett pears $1 per 11-quart basket, and Keiffers 2 to 2½ cents per pound; plums 50c. to $1 per per basket.

In 1920 prices of the smaller fruits were fairly well maintained, cherries, raspberries, strawberries and grapes sold well, but a heavy slump took place in plums, pears and in apples during the late fall.

Grapes for once came into their own. Not only were they a heavy crop of excellent quality, but prices ruled at $100 to $120 per ton, which has had the effect of giving the grape growers renewed confidence in their vineyards.

Plums fell down badly, due partly to the very heavy crop, and also to the lack of cars for proper distribution over the country.

Keiffer pears were hard to sell at any price.

Apples started off well especially those of high color, prices ranging from 90c. to $1 per bushel, tree run. Later in the season, however, a sharp downward movement began, and prices sagged. They were hit by the general lack of confidence and bearing down in prices, as well as a shortage of packages, without precedent in the province. A peculiar situation arose, while prices were going down the cost of production was increasing. Wages for orchard help advanced to four and five dollars a day, the cost of implements and machinery to run our farms had increased 100 per cent. over pre-war prices, and there was a general lack of interest and efficiency in the service on our farms. Packages for small fruits doubled in price, while barrels were hard to get at even $1.50 each, and boxes and hampers at 35 to 40 cents.

Some of our enterprising dealers shipped many carloads of apples in sacks holding 1¼ bushels, while others took some of the crop by shipping in bulk.

On the night of November 12th there were 7 degrees of frost. Hundreds of bushels of apples were still on the trees, and even some of those in barrels in the orchards were injured by the continuous low temperature during that month.

While we are speaking of apples it may not be amiss to recall to our minds, that over 50 years ago, there were apples handled and shipped from this province.

THE LATE GEORGE E. FISHER.

The following is an extract from a letter kindly furnished to us by Mr. Hodgetts:

George E. Fisher was born in Nelson Township, Halton, in 1850, on the farm which he owned and operated until his death in July 1919. He was a man of wide sympathies and interests, a forceful speaker and writer, and had the rare faculty of saying a good deal in a few well-chosen words.

He took an active part in the various activities of his community—the Grange, the school, and especially the advancement of the fruit industry.

In 1887 he helped to organize the Burlington Fruit Growers' Association, and was the first president. Twenty-five years ago he was a useful member of the Ontario Fruit Growers' Association, and served on several committees.

For several years Mr. Fisher was the president and manager of the Burlington Canning Company. He was a member of the Halton County Council for two years, a director of the Halton Mutual Fire Insurance Company for several years, and also of the Hamilton Fire Insurance for a time.

Mr. Fisher, 25 years ago, was one of the largest fruit growers in the Burlington district. About 1885 the apple growers, under his management, began to ship apples to England and Scotland in carload lots.

When the San José scale invaded the southern portion of the province some years ago, Mr. Fisher was commissioned by the Hon. John Dryden, Minister of Agriculture, to investigate, experiment and report on the most efficient remedy. He went into the work very earnestly, boiling lime and sulphur in varying quantities and proportions, and making tests from time to time on scale-infested trees until he reached a remedy which was effective, and which is still in general use, in its main features.

In the passing of Geo. E. Fisher, the district lost an able and a good man.

THE LATE WILLIAM ARMSTRONG.

William Armstrong was born in 1847 in Chambly near Montreal, and was of Scotch descent. He was educated in a private school, and in his younger manhood went into the dry goods business with the Morgan Brothers, Montreal. Later he moved to St. Catharines, and continued in the same business for several years.

In 1881 he began fruit farming at Queenston, in which as the years went by he was enthusiastic and successful. From time to time he was awarded many prizes for fruits at the local fairs, the Canadian National Exhibition, Pan American at Buffalo, and was the winner of the Wilder Medal. His farm was also awarded 1st prize in the Ontario Orchard Competition, 1911. He was always much interested in the fruit associations, schools, Agricultural College, Experimental Farm and in historical societies, was a Liberal, a Methodist and a temperance worker.

During the past few years Mr. Armstrong enjoyed leisure on his old farm during the summer, and went to Florida in the winter, where he made many friends, and became a member of the St. Augustine Touring Club.

While there this winter his death occurred and the remains were brought home and interred at Queenston on Feb. 6th 1921.

Thus lived and passed a man of usefulness and of good influence.

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